



**INTERNATIONAL  
TECHNOLOGY  
CORPORATION**

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## **Report**

# **Investigation and Site Assessment for Subsurface Contamination**

**Powerine Oil Refinery  
Santa Fe Springs, California**

**Powerine Oil Company  
Santa Fe Springs, California**



January 9, 1986

Project No. 850009

Mr. Henry Del Castillo  
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Report  
Investigation and Site Assessment  
for Subsurface Contamination at  
Powerine Oil Refinery  
Santa Fe Springs, California

Dear Mr. Del Castillo:

Transmitted herewith are five copies of the subject report. One additional copy has been forwarded to Mr. Mike Leger.

International Technology Corporation (IT) appreciates the opportunity of providing services to Powerine Oil Company. If you have any questions, please do not hesitate to call.

Sincerely,

*Mohsen Mehran* E.E

Mohsen Mehran, Ph.D.  
Project Manager

MM:de  
POW:0009-R1L1

Project No. 850009

REPORT  
INVESTIGATION AND SITE ASSESSMENT  
FOR SUBSURFACE CONTAMINATION AT  
POWERINE OIL REFINERY,  
SANTA FE SPRINGS, CALIFORNIA

PREPARED FOR

Powerine Oil Company  
Santa Fe Springs, California

PREPARED BY

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January 1986



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## EXECUTIVE SUMMARY

In July 1985, International Technology Corporation (IT) was retained by Powerine Oil Company (Powerine) to conduct an assessment of potential contamination of soil and ground water at the Powerine refinery located in Santa Fe Springs, California. Powerine was requested by the California Regional Water Quality Control Board to conduct this investigation. The investigation started in August 1985 and consisted of drilling a number of borings and installing ground-water and vapor monitoring wells. Soil and ground-water samples were collected for chemical analyses.

Soil samples were analyzed for volatile organic compounds, phenolic compounds, oil and grease, Total Organic Halogens (TOX), cyanide, and trace metals. The ground-water samples were analyzed for volatile organic compounds, phenolic compounds, TOX, cyanide, metals, Total Organic Carbon (TOC), sulfate, chloride, pH, and specific conductance. The vapor monitoring wells were purged, and organic vapor in the formation was analyzed using an Organic Vapor Analyzer (OVA) equipped with a GC-FID detector and a Threshold Limit Value (TLV) sniffer. The results of field and analytical works are presented and discussed in the following sections of this report.

The investigation was focused on the following issues:

- Presence of volatile organic vapors in the soil pore space.
- Presence of petroleum-derived compounds in the soil.
- Presence of dissolved and free hydrocarbons in the ground water.

The salient features and findings of the investigation related to each of the above issues are listed below.

### Hydrocarbons in the Vapor Phase

- The vapor monitoring investigation revealed the presence of organic vapors in all the vapor monitoring wells. Probable sources include past leak or spill incidents, and three underground tanks.

### Adsorbed Compounds in Soil

- Concentration of total metals in the soil samples analyzed was not significant and was substantially below the Total Threshold Limit Concentrations (TTL), indicating that significant metal contamination does not exist at the site.
- Hydrocarbon compounds were present in the subsurface soil samples from several borings located in the southwest section of the refinery. A combination of several factors may have been responsible for the presence of hydrocarbon compounds in the soils in this section of the site. These factors include a past gasoline spill and fire incident, possible leaks or spills from an API separator tank and several sumps, and presence of heavy oil and tar on the surface. A light cut gasoline tank with a past leaking incident is the probable source of hydrocarbons in a soil sample from Well 204, located in the southeast section of the refinery.

### Organic Compounds In Ground Water

- An uppermost water-bearing zone was encountered in all the ground-water monitoring wells at approximately 85 feet below the surface at the site. Information on regional hydrogeology suggests that this water-bearing zone may extend beyond the site boundaries in all directions. A silty clay to clay layer, ranging in thickness from >3 feet to 10 feet, was encountered in some of the ground-water monitoring wells, indicating that this layer may mark the lower boundary of the uppermost water-bearing zone at the site.
- Specific conductance and chloride concentrations in a ground-water sample from the background monitoring well at the site significantly exceeded California drinking water quality criteria, indicating that ground water in the uppermost water-bearing zone at the site is not suitable for domestic and many industrial purposes.

- No significant dissolved metal contamination was observed in the ground-water samples. Cyanide concentrations were below the detection limit of 0.1 mg/l in all the samples.
- No free hydrocarbon product was found on the surface of the uppermost water-bearing zone at the site.
- Some dissolved organic compounds, including benzene, were found in the uppermost water-bearing zone throughout the site. The highest concentrations of these compounds were observed in Well 102 (Tables 6 and 6A), located in the southwest section of the site, north of Lakeland Road.
- Water samples collected from three deep production wells at the site in March and May 1985 had no indication of organic or inorganic contamination. These production wells are completed in deep aquifers and have been used in the past as the source of process water for the refinery. One of these wells (6) is located in the area where dissolved organic compounds were detected in the uppermost water-bearing zone. This indicates that migration of chemicals from the uppermost aquifer into the deeper aquifers, in which this well is perforated, has not occurred.

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Based on the studies conducted to date, it is concluded that no free (liquid) hydrocarbon pools exist on the water table under the site. This is an indication that, presently, migration of liquid hydrocarbons to the ground water is not occurring. However, benzene and some other dissolved hydrocarbons were detected in the uppermost water-bearing zone at the site. The highest concentrations of hydrocarbons were observed in the southwest areas of the site. The environmental consequences of these compounds would depend primarily on the beneficial uses of ground water downgradient of the site. A survey of the ground-water wells located within a mile downgradient of the site indicated that these wells are perforated in the deeper aquifers. The ground water in these aquifers is not expected to be affected by organic compounds present in the uppermost water-bearing zone at the site. To ascertain this conclusion, however, additional investigations may be needed.

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## 1.0 INTRODUCTION

### 1.1 BACKGROUND

In February 1985, the California Regional Water Quality Control Board, Los Angeles Region (RWQCB), issued an order to the refineries in the Los Angeles region to "conduct a subsurface investigation of the facilities to detect and assess any ground water pollution which may be present." The Powerine Oil Company (Powerine) refinery is located in the Los Angeles region (12354 Lakeland Road in Santa Fe Springs, California) and was issued Order No. 85-17 by the RWQCB. The refinery is bounded by Florence Avenue to the north, Lakeland Road to the south, and extends east of Bloomfield Avenue where a coke storage area and several above ground tanks are located. The site is defined as the areas encompassing the refinery, the coke storage area, and Powerine offices and truck loading facility (to the south of the refinery), as shown in Figure 1.

On May 19, 1985, in response to RWQCB Order No. 85-17, Powerine submitted a plan of investigation to the RWQCB. This plan was determined to be inadequate, and on June 24, 1985, the RWQCB provided Powerine with specific requirements to comply with the order.

In July 1985, Powerine retained International Technology Corporation (IT) to prepare a revised work plan. The revised work plan, dated July 19, 1985, was approved by the RWQCB in a letter to Powerine dated August 23, 1985. IT began implementing the approved work plan on August 23, 1985, by drilling the first monitoring well at the site. The results of the investigation are presented in this report.

### 1.2 OBJECTIVES AND SCOPE OF WORK

The overall objective of the investigation was to detect and evaluate groundwater contamination that may be attributed to Powerine operations. The specific objectives of the investigation were as follows:

- Assess the presence of liquid hydrocarbon and other potential pollutants in the ground water of the uppermost water-bearing zone beneath the site.
- Assess the presence of hydrocarbon and other pollutants in the subsurface soil and in the vapor phase of the unsaturated (vadose) zone which may act as a source of ground-water contamination.

The scope of work for this investigation followed the scope that was described in detail in the revised work plan of July 19, 1985. The plan consisted of collection and review of available data, field work (site inspection, drilling and well installation, soil and ground-water sampling, and field vapor monitoring), laboratory analyses of soil and ground water, and data assessment. In the revised work plan of July 19, 1985, IT proposed to conduct the field investigation in two separate phases. However, following Powerine's request to expedite the investigation, both phases were performed concurrently.

The available data regarding the site history and operation, regional geology and hydrogeology, and beneficial use of ground water in the area were collected and reviewed. The collected data included published documents and government agencies files, historic air photographs and topographic maps, Powerine drawings and records, and interviews with Powerine employees.

Field work included drilling ten deep borings to the uppermost water-bearing zone. These borings were completed as ground-water monitoring wells. Eleven shallow borings were drilled in areas of potential soil contamination. Soil samples were collected during drilling of all borings. Nine of these shallow borings were completed as vapor monitoring wells. The vapor monitoring wells were purged and concentrations of volatile organics were measured in the field. The ground-water monitoring wells were developed, purged and sampled.

Soil and ground-water samples were analyzed for organic and inorganic compounds as requested by the RWQCB. A detailed description of field and analytical work is presented in Section 2.0 of this report.

### 1.3 SITE HISTORY AND OPERATIONS

The information presented in Sections 1.4 and 1.5 was obtained from interviews with Powerine personnel, Powerine documents, and the site inspection report issued by Ecology and Environment (1985) on behalf of the U.S. Environmental Protection Agency.

In the late 1930s, Powerine acquired a small refinery. Significant additions to the refinery were made in 1954, 1961, 1967, 1974 and 1982. Until 1968, the refinery was a 7,000-barrel-per-day operation with distillation and some thermal cracking. In 1968, the cat cracker and alkylation units were added and crude storage expanded so the refinery could process 27,000 barrels per day. In 1974, a new crude unit was added, increasing capacity to 44,000 barrels per day. The last refinery expansion occurred in 1982 when the heavy oil upgrading project, including a coking operation, coke storage, and additional tank storage capacity, were added to the refinery. Since July 1984, the refinery has been closed except for some product storage and maintenance of existing equipment.

In any major industrial facility, drips, leaks and spills occur. In refineries, however, where there are volatile substances, high temperature, and rotary equipment operating, extra care is taken to repair drips and leaks quickly to prevent possible explosions and fires. Where toxic substances are encountered, special care is used to mitigate against any accidents. Handling of unrefined and refined products outside the refinery area, in the tank farms, and in the pipings to the tank farms is monitored to prevent spills and leaks. Nevertheless and in spite of a daily monitoring plan, the potential for having significant spills in these areas is great. As shown in Figure 2, there have been several leaks from above-ground storage tanks, at the Powerine refinery. The contents of these tanks are listed in Table 1. Other potential sources affecting the subsurface are underground tanks. Underground tanks and several other underground structures are present on the site, as shown in Figure 2.

#### 1.4 PROCESS AND WASTE MANAGEMENT PRACTICES

The refinery processed crude oil and raw naptha as feedstock to produce gasoline, diesel, and jet fuel. Chemicals such as tetraethyllead (additive to gasoline), aluminum oxide, hydrofluoric acid, nickel-cobalt, cobalt-moly and platinum-rhenium catalysts, propylene dichloride, dimethy disulfide and lime were used in various refinery operations. The liquid products were stored at the site in labeled tanks, ranging in size from 1,000 to 100,000 barrels, and were transported via pipeline or truck. Coke and sulfur were also produced as by-products and shipped to customers by railroad or truck.

Eight water wells had been used to provide process water for the refinery. Only three of the water wells are presently operational but have not been used since April 1982. The well water was used for boilers, desalting crude oil, the cooling tower, and fire prevention. Domestic city water was used for coke cutting operations and making coke slurry. Water was also used in the heavy oil operation, steam stripping, production of steam, steam-driven compressors, and removing acid gases from refinery fuel gas.

Waste water was produced at the refinery at a rate of approximately 195,000 gallons per day. The waste stream, before treatment, included oil and grease, phenols, cyanide, dissolved sulfides, ammonia, chromium, iron, zinc, and thiosulfate. Waste effluents were kept in three holding tanks where pH and concentrations of various constituents were tested. Oil and grease were removed and kept in a slop tank. After pre-treatment, to satisfy the requirements of the Los Angeles County Sanitation Department, the waste effluents were discharged into the sanitary sewer system for additional treatment at a publicly-owned treatment plant.

Storm surface runoff in the refinery is collected in two reinforced concrete-lined impoundment basins. The two basins are located on the western and eastern ends of the refinery. Oil and grease were separated from the water in the basins by an oil skimmer, and the oil-free water was discharged into the storm drain on Lakeland Road.

Other wastes have been generated at the refinery, including alkaline sludge/solution, API separator sludge, fluid catalytic cracker spent catalyst, asbestos-containing insulation, and sediments from the tanks, still and sumps. Since the 1940s, all these wastes have been disposed of off site in accordance with applicable and current regulations at several waste disposal facilities, thus reducing the potential for on-site contamination.

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## 2.0 FIELD AND LABORATORY WORK

### 2.1 DRILLING AND WELL INSTALLATION

Well drilling started on August 23, 1985, and was completed on September 21, 1985. The scope of drilling activities included shallow and deep borings. A total of nine shallow borings, 301 through 309, were drilled (40 feet deep) next to the above-ground tanks with past leak or spill incidents, and near the underground tanks (Figure 2). These borings were completed as vapor monitoring wells. Two additional shallow borings (401 and 402) were drilled next to a former sulfur pit. Subsequent to sampling, these two borings were filled with a mixture of sand and bentonite. All shallow borings were drilled using an 8-inch hollow stem auger.

Ten deep borings (101 through 104 and 201 through 206) were drilled to depths ranging from 99 feet to 119 feet. The deep borings were drilled using 10-inch hollow stem augers, except for Borings 104, 202 and 203. Boring 104 was initially drilled with 8-inch hollow stem augers and was redrilled using 10-inch hollow stem augers. Drilling of Boring 202 started with 10-inch hollow stem augers, but, upon collapse of the hole, drilling was continued using the mud rotary method. Boring 203 was drilled to a depth of about 100 feet with 10-inch hollow stem augers, then drilling continued to a depth of 119 feet using the mud rotary method. All the deep borings were completed as ground-water monitoring wells.

Soil samples were recovered from the borings, generally at 5-foot intervals, using a modified California ring sampler and 2.5-inch stainless steel rings. The location of the samples, blow counts, and types of soils encountered are provided on the boring logs (Appendix A). Upon retrieval, each sample, relatively undisturbed in stainless steel rings, was quickly placed inside a plastic tube, covered with aluminum foil at both ends, and capped using plastic caps. The caps were sealed with duct tape to prevent possible loss of volatile organic compounds. The samples were placed in a cooler containing blue ice and kept at 4°C.

Subsequent to sample collection, a field measurement of each sample for relative volatile organic content was made using a Threshold Limit Value (TLV) sniffer calibrated for hexane. The results of this initial screening were used to select two to three soil samples from each boring for chemical analysis. Analytical methods are described in Section 2.5.

The augers were steam cleaned before drilling each successive boring. Before use, the sample rings and sampler were washed in trisodium phosphate (TSP) solution and rinsed in tap water followed by distilled water. All samples were handled according to IT's chain-of-custody procedure.

Following completion of the borings, well casings were installed. Monitoring well construction details are shown on Figure 3 for above grade surface completion and Figure 4 for below grade surface completion. The shallow borings were completed as vapor monitoring wells with 2-inch inside diameter PVC pipe. The deep borings were completed as ground-water monitoring wells with 4-inch inside diameter PVC pipe. The water monitoring wells were surveyed for location and reference point elevation with regard to Mean Sea Level (MSL). The reference point refers to a mark on the top of the PVC casing or steel riser where the depth to water level in the well was measured. The reference point elevations are provided in Table 2.

## 2.2 WELL DEVELOPMENT AND GROUND-WATER SAMPLING

To clean the slotted zone and to provide better communication between the aquifer and the well casing, the ground-water monitoring wells were developed by pumping about 5 to 10 well volumes until the water was relatively free from sediments. The equipment used in well development was steam cleaned between each well development. One to three weeks later, the wells were purged by pumping about four well volumes. The wells were then left to recover for 24 hours, and samples were obtained using a Teflon® bailer. Between sampling, the bailer was cleaned with TSP solution and rinsed first with tap water and then with distilled water. Samples were kept in pre-cleaned glass bottles with Teflon® septum caps, obtained from I-Chem Research, Inc.

Six ground-water samples were obtained from each well during the sampling period and analyzed, as requested by the RWQCB, for:

- Purgeable volatile organics
- Total Organic Halogen (TOX)
- Total Organic Carbon (TOC)
- Phenolic compounds
- Metals
- Chloride and Sulfate
- Cyanide

For purgeable volatile organics, the water samples were stored in 40 mL glass vials with no preservatives. For TOX and TOC, the water samples were stored in 1,000 mL glass bottles with no preservatives. For phenolic compounds, the water samples were stored in 500 mL glass bottles and preserved with hydrochloric acid and copper sulfate. For metals, the water samples were pre-filtered in the field through a 0.2 micron membrane filter using a plastic disposable filter and a handpump. The filtered samples were stored in glass bottles and preserved by nitric acid. Water samples for chloride and sulfate were stored in 250 mL glass bottles with no preservatives. For cyanide, the water samples were stored in 500 mL glass bottles and preserved by sodium hydroxide. Attempts were made to leave no head space or air in the samples used for organic analyses.

Specific conductance and pH of ground water were measured in the field. The pH was measured with a glass electrode, calibrated against two buffers (7 and 4). The conductance meter was adjusted for the water temperature, and the measurement was automatically corrected to 25°C.

### 2.3 MEASUREMENTS OF GROUND-WATER LEVEL AND FREE HYDROCARBON THICKNESS

On October 23, 1985, water level measurements were made. The measuring procedure consisted of lowering a steel tape into the well to the ground water. Prior to each measurement, the tape was decontaminated by washing with TSP solution and rinsing with tap water and distilled water. A water indicator paste (McCabe) was applied to one side of the tape. Upon contact with water, the paste changes color, indicating the level of contact with the water surface.

On November 11, 1985, measurements of water level and of the potential thickness of free hydrocarbon on the water table were performed. A gasoline gauging paste (Kolor Kut) was applied to one side of the tape and a water indicator paste (McCabe) to the opposite side. When these pastes make contact with water or free product, a change of color occurs on the appropriate paste at the level of contact. The tape was decontaminated between each measurement as described above.

#### 2.4 VAPOR WELL MONITORING

On November 9, 1985, the nine vapor monitoring wells (301 through 309) were monitored for volatile organic concentrations. The monitoring process for each well involved three steps:

- Evacuation by pumping for 10 minutes at a rate of about 7 liters per minute (lpm).
- Measurement using a Bacharach Instrument TLV sniffer, calibrated for hexane.
- Measurement using an Organic Vapor Analyzer (OVA), Foxboro Analytical Model 108, equipped with a Gas Chromatograph-Flame Ionization Detector (GC-FID).

During purging, a two-inch PVC cap, adapted with a one-quarter-inch Tygon tube, was fixed and sealed to the top of the vapor well casing (Figure 5). The adapted tube was then fed through a microfilter to the intake of a high volume air pump, adjusted at 7 liters per minute. The pump was powered by a 600 watt portable generator. Each well was pumped for at least ten minutes before the monitoring device was connected. In this manner, any abnormally high concentrations of vapor which might have developed in the well were evacuated, and representative formation samples could then be collected and analyzed by the instrument.

Following purging for ten minutes, the TLV sniffer was connected to the outflow of the pump. The TLV sniffer was left connected until steady readings were obtained, which usually took one to two minutes. On all occasions, the TLV sniffer was allowed to warm up for at least seven minutes before use.

After the TLV testing, the OVA meter was affixed to the pump outflow. During the course of the testing with the OVA meter, the hydrogen flame was continually self-extinguished, presumably due to air/fuel mixtures being too rich. Thus, the OVA readings are not included in this report.

## 2.5 ANALYTICAL METHODS

The ground-water and soil samples were shipped to the IT Analytical Laboratory in Cerritos, California. The samples were kept on ice at 4°C, until analysis. The methods of analyses used for soil and water samples are summarized in Table 3.

### 3.0 HYDROGEOLOGY

#### 3.1 REGIONAL HYDROGEOLOGY

General hydrogeologic characteristics of the area were derived from the State of California Department of Water Resources (DWR), Bulletin No. 104, published in 1961.

The City of Santa Fe Springs (the City) is in southeastern Los Angeles County and is bounded by the communities of Whittier, La Habra, Norwalk, and Downey, to the north, east, south, and west, respectively. The City lies some two miles east of the San Gabriel River; about four miles south of the base of the south facing flank of the Puente Hills; and is within the Santa Fe Springs Plain subgeomorphic province. This plain is a low, slightly rolling, topographic feature with the general surface sloping gently northward and southward on either side of the northwest trending Santa Fe Springs anticline, which traverses the central part of the City.

The surface of the plain is underlain, in a descending sequence, by the Lakewood Formation, upper Pleistocene Age, that consists of alluvial interbedded stream sediments from the San Gabriel River and fan deposits from the Puente Hills; San Pedro Formation, lower Pleistocene Age, composed of continental sands and silts, with gravel beds, and interbedded marine clays and muds; and pre-Pleistocene Age marine and non-marine consolidated sediments lying unconformably on crystalline basement rock. The Lakewood and San Pedro formations have a combined thickness ranging from 700 feet to 1,100 feet in the Santa Fe Springs area. The thickness of the pre-Pleistocene sediments was not determined for this study.

There are several regional water-bearing units in the Lakewood and San Pedro Formations. The major water-bearing unit of interest to this investigation is the upper aquifer unit in the Lakewood Formation called the Exposition aquifer. The materials of the Exposition aquifer consist of coarse gravels to clays. The environment for deposition of the aquifer has formed interbedded

permeable, coarse-grained and less permeable, fine-grained units with lenticular sandy and gravel units also isolated by the fine-grained deposits. The Exposition aquifer is separated from a deeper water-bearing horizon by an unnamed aquiclude.

### 3.2 SITE HYDROGEOLOGY

#### 3.2.1 Stratigraphy

Cross sections A-A', B-B' and C-C' (Figures 6, 7 and 8) were constructed from information collected while drilling the deep and shallow wells. Based on correlations of well logs and the cross sections above, the site is characterized as being immediately underlain by three unconsolidated, stratigraphic units. The upper unit is composed of interbeds and lenses of silty clays to clayey silts, silts to sandy silts, and silty sands to sands. A silty clay and clayey silt horizon of the upper unit, having a thickness ranging from 4 feet to 16 feet, mantles the property. Most of the borings penetrated the upper unit (thickness ranges from 28 feet to 79 feet). Additionally, the cross sections suggest that horizons of the upper unit have components of slope from the north to south and the east to west and that fine- and coarse-grained deposits predominate in the western and eastern portions of the property, respectively.

The middle stratigraphic unit consists of sands with minor, discontinuous lenses of gravels, silts, and clays. The thickness of this unit, as defined by the borings, ranges from 50 to 70 feet, and the depth to the bottom of this sand unit ranges from 94 feet to 105 feet. The lower portion of this sandy horizon was found to be saturated over the property.

A silty clay, with possible lenses of sands and gravels, was encountered underlying the middle, sandy unit in borings 103, 104, 202, 203, 204, and 205. The thickness and continuity across the site of this lower unit was not ascertained during our study.

### 3.2.2 Ground Water

Ground water was encountered in all deep borings at the site at depths ranging between 85 feet and 95 feet below the ground surface. These measurements identify the static level of the uppermost water-bearing zone underlying the property. Reference to DWR Bulletin No. 104 suggests this water-bearing zone is the Exposition aquifer and will continue beyond the property limits.

Figure 9 shows the water table elevation contours based on on-site water level measurements conducted on October 23, 1985. The hydraulic gradient is calculated to be about 0.0085 ft/ft, and the ground-water flow is toward the south to southwest. Utilizing typical hydraulic conductivities of  $10^{-3}$  to  $10^{-2}$  cm/s for silty sand to clean sand (Freezen and Cherry, 1979) and an average porosity of 0.3, the linear pore water velocity is estimated to be about 9 to 90 meter/year (about 30 to 300 feet/year). Evaluation of site-specific aquifer parameters will provide a better estimate of the rate of water flow and chemical migration.

Production wells 6, 7 and 8, which provided process waters for the refinery, were advanced into deeper water-bearing zones. Available data concerning these wells is presented in Table 4.

#### 4.0 DISTRIBUTION OF CHEMICALS IN SOIL

Chemical compounds measured during this investigation are present in three forms, as follows:

- Compounds associated with the unsaturated soil matrix,
- Compounds present in the vapor phase of the soil pore space, and
- Compounds dissolved in the ground water.

This section presents the results and interpretation of the chemical analyses of soil samples collected from the unsaturated zone during drilling. The soil data provides an assessment of the areal and vertical extent of chemical distribution in the soil. The results of field measurements of volatile organics of the vapor phase in the subsurface strata are also presented. The lateral extent of distribution of chemicals in the ground water is described in Section 5.0.

In soil and ground-water quality investigations, it is customary and useful to provide background data as a reference for comparison with site characteristics influenced by facility operations. Boring 104, located at the northeast corner of the site, was selected for this purpose. This location did not show any obvious signs of surface contamination, was away from facility operations, and was believed to be upgradient in terms of ground-water flow direction. As expected, the analytical results of the soil and ground-water samples from this boring showed no noticeable evidence of contamination. Thus, the results of soil and water samples from Boring 104 were used as the background levels against which the results of other samples were compared. The analytical results of soil samples are provided in Tables 5 through 7, and the certificates of analyses are included in Appendix B.

Section 4.1 presents the results and interpretation of chemical data for the soil matrix. Section 4.2 describes the results of volatile organics in the vapor phase.

#### 4.1 ANALYTICAL RESULTS OF THE SOIL SAMPLES

The soil chemical data includes the concentrations of inorganic species (metals) and organic constituents (purgeable organics, phenols, oil and grease, TOX, and cyanide). Each of the above categories is discussed separately.

##### 4.1.1 Inorganic Species

The results of the analyses of total metals in soil samples are summarized in Table 5. Table 5 also presents the metals' Total Threshold Limit Concentrations (TTLC), a guideline for hazardous/non-hazardous classification of waste (California Administrative Code, 1984). Concentrations of metals in all soil samples analyzed were significantly below TTLC levels for each respective element. The total concentrations of metals were also considerably below the values of ten times the Soluble Threshold Limit Concentrations (STLC) for respective elements, indicating that none of these soil samples can yield concentrations exceeding STLC levels for the elements reported in Table 5 if they were subjected to the Waste Extraction Test (WET). The STLC and the procedure for WET are also provided in the California Administrative Code (1984).

Based on comparison of the inorganic results of the soil samples with the background soil samples, TTLC, and STLC levels, no evidence of any significant metal contamination was found.

##### 4.1.2 Organic Compounds

The analytical results of organic compounds in the soil samples are reported in Tables 6, 6A, and 7. The organic compounds are divided into volatile organic compounds, oil and grease, phenols, cyanide, and TOX and are discussed separately.

##### 4.1.2.1 Volatile Organic Compounds

The results of purgeable volatile organic compounds in the soil samples are reported in Tables 6 and 6A. Table 6 includes the volatile organic compounds

on the EPA Hazardous Substances List. Other volatile organic compounds are presented in Table 6A for only those borings that showed concentrations above detection limits.

Table 6 reveals that only some of the soil samples from Borings 102, 201, 204 and 301 showed concentrations of some oil-related volatile organic compounds, mainly benzene, ethylbenzene, toluene, and xylene (BETX). The highest concentrations of BETX compounds were observed in the soil samples from the upper 49 foot section of Boring 102, and the range of concentrations is as follows:

<u>Compounds</u>	<u>Concentration Range (<math>\mu\text{g/Kg}</math>)</u>
Benzene	<5 - 390
Ethylbenzene	<5 - 1,500
Toluene	<5 - 3,200
Total Xylene	TR12 - 4,100

Concentrations of the above compounds fluctuate with depth in the upper section of Boring 102.

The soil sample collected from Boring 201 at a depth of 8.5-9.0 feet had concentrations of toluene (260  $\mu\text{g/Kg}$ ) and total xylene (87  $\mu\text{g/Kg}$ ). Concentrations of ethylbenzene (320  $\mu\text{g/Kg}$ ), toluene (320  $\mu\text{g/Kg}$ ), and total xylene (4,400  $\mu\text{g/Kg}$ ) were observed in the top soil sample (depth 4.5 - 5.0 feet) from Boring 204. The depths of presence of volatile organic compounds in Borings 201 and 204 were not determined, but they are expected to be less than that of Boring 102. *Reason for no analysis for 201 & 204 is that the depth*

The upper soil sample from Boring 301 (depth 8.5 - 9.0 feet) did not show presence of volatile organic compounds (Table 6). The two lower samples from Boring 301 (depths 28.5 - 29.0 feet and 38.5 - 39.0 feet), however, showed traces of total xylene (<190 to <1000  $\mu\text{g/Kg}$ ) and ethylbenzene (<170  $\mu\text{g/Kg}$ ).

Methylene chloride was detected in concentrations ranging from 100 to 230  $\mu\text{g/Kg}$  in several samples, some of which did not show any other sign of organic volatile contamination. Methylene chloride is widely used in laboratories, and the small amounts detected in some of soil samples are believed to be the result of sample contamination during handling and analysis in the laboratory, rather than an indication of spills and leakage of this compound at the site.

where is the source  
Need confirmation of this but they don't know who to use for block

#### 4.1.2.2 Oil and Grease

Concentrations of oil and grease were observed in some soil samples from Borings 102, 201, 302, and 402 (Table 7). Oil and grease concentrations ranging from 1,500 to 32,000 mg/kg were found in soil samples from the upper 49 foot section of Boring 102. The soil samples collected at a depth of 8.5 to 9.0 feet from Borings 201, 302, and 402 showed oil and grease concentrations of 11,000, 5,060, and 940 mg/kg, respectively.

#### 4.1.2.3 Phenols

Concentrations of phenols were only observed in some of the soil samples from Borings 102, 201, 302 and 305 (Table 7). The phenols concentrations in the soil samples from the upper 49 foot section of Boring 102 ranged from <10 to 200  $\mu\text{g/Kg}$ . Soil samples collected at a depth of 8.5 - 9.0 feet from Borings 201 and 302 showed phenols concentrations ranging from <1 to 178  $\mu\text{g/Kg}$  and <10 to 104  $\mu\text{g/Kg}$ , respectively. Boring 305 showed a concentration of phenols in the bottom sample (38.5 - 39.0 feet). This cannot be fully explained because no other evidence of contamination was found in this sample.

#### 4.1.2.4 Cyanide

Several soil samples from Borings 104, 201, 203, 307 and 401 showed cyanide concentrations ranging from 0.2 to 1.5  $\mu\text{g/Kg}$  (Table 7). Cyanide concentrations of 1.1 and 4.0  $\mu\text{g/Kg}$  were observed in two soil samples from Boring 402, collected at depths of 8.5 - 9.0 feet and 33.5 - 34.0 feet. Two soil samples from Boring 301 (depths 8.5 - 9.0 feet and 28.5 - 29.0 feet) showed cyanide concentrations of 2.0 and 0.7 mg/kg. Cyanide concentration in the bottom sample from Boring 301 (38.5 - 39.0 feet) was below the detection limit of 0.2 mg/kg.

#### 4.1.2.5 Total Organic Halogens

Total organic halogen (TOX) values in the soil samples were mostly below detection limits (Table 7). Few TOX values slightly above detection limits were observed in several samples. In some samples (e.g., Boring 204, S-7; Boring 206, S-2 and S-7; Boring 303, S-3, and Boring 309, S-2) in which TOX values were above detection limit, the concentrations of other organics were either below the detection limit or within the background levels.

#### 4.2 VAPOR PROBE SURVEY

Results of the field investigation for vapor well monitoring are presented in Table 8. In every well, combustible organic vapors were measured with both the TLV sniffer and the OVA meter. However, because the OVA meter continually self extinguished and the readings did not stabilize, the OVA results are not presented in Table 8. Additionally, odors were detected in every well. The odors varied from well to well in both magnitude and quality. Readings on the TLV Sniffer ranged from 4,000 ppm at Well 309 to >10,000 ppm at Wells 302 and 307. The southwest region of the site appeared to have the greatest concentration of vapor.

## 5.0 GROUND-WATER QUALITY

This section presents the analytical results and interpretation of ground-water quality. The water quality data is used to identify and assess the areal extent of potential ground-water contamination at the site. The vertical extent is assessed by comparing the water quality parameters of the uppermost water-bearing zone with those of the underlying aquifers measured in existing on-site production wells. Water samples from the uppermost aquifer were collected for the purpose of this investigation, and the analytical results are discussed in Section 5.1. There were also analytical results available on three water samples collected from deeper aquifers beneath the site. These results are presented in Section 5.2.

### 5.1 UPPERMOST WATER-BEARING ZONE

Borings 101 through 104 and 201 through 206 were completed in the uppermost aquifer at the site, as ground-water monitoring wells, to assess flow direction and hydraulic gradient and to evaluate the ground-water quality. Monitoring Well 104 is located upgradient relative to all the other monitoring wells at the site and is considered as the background well. The analytical results of the water samples from other monitoring wells at the site were compared against the results of the background monitoring well. Ground-water analytical results for the uppermost aquifer are summarized in Tables 9 and 10, and the certificates of analyses are provided in Appendix B. Inorganic and organic water quality are discussed separately.

#### 5.1.1 Dissolved Inorganic Species

The analytical results for specific conductance, major anions, pH, and metals are reported in Table 9. The ground-water samples showed pH values within a neutral range (6.75 - 7.00). The background monitoring well showed a high specific conductance (3500  $\mu$ mhos/cm) and chloride concentration (1200 ppm). These values significantly exceed the upper limits of the California drinking water quality criteria (California Administrative Code), indicating that the ground water in the uppermost aquifer is not suitable for domestic and many industrial purposes.

Concentrations of most of the dissolved heavy metals in ground-water samples were below detection limits. A few samples had arsenic and cadmium concentrations of up to 0.09 mg/l and 0.06 mg/l, respectively. These concentrations slightly exceed drinking water standards (0.05 mg/l for arsenic and 0.01 mg/l for cadmium). However, these concentrations are very low, and the ground water in the uppermost water-bearing zone is not expected to be used for drinking purposes. The overall inorganic results of the ground water in the uppermost aquifer indicated no significant contamination of the ground water when compared to the background levels.

#### 5.1.2 Free Hydrocarbons

The uppermost ground-water table was checked for free hydrocarbon on November 11, 1985. No free hydrocarbon was detected in the monitoring wells at the site.

is one check adequate?

#### 5.1.3 Dissolved Organic Compounds

The results of cyanide, phenols, TOC, and TOX are reported in Table 9. Cyanide concentrations in all the ground-water samples were below the detection limit of 0.1 mg/l. Phenol concentrations above the detection limit were observed in water samples from Monitoring Wells 102, 202, and 206. The highest phenol concentration (6.8 ppm) was encountered in Monitoring Well 102. TOC and TOX in most of the monitoring wells were below the concentrations found in the background well. The TOC value in Monitoring Well 202, however, was considerably higher than the background level.

Tables 10 and 10A represent the results of dissolved volatile organic compounds in the ground-water samples. Table 10 includes the results of compounds listed on the EPA Priority Pollutant and Hazardous Substances Lists. Table 10A includes other dissolved volatile organic compounds.

As noted in Table 10, several hydrocarbons were detected in ground-water samples. Among these hydrocarbons, benzene, ethylbenzene, toluene, total xylenes, acetone and MEK in some wells showed concentrations higher than other compounds analyzed. The concentrations of the above-mentioned compounds are as follows:

MONITORING WELL	CONCENTRATION ( $\mu\text{g}/\text{l}$ )					
	BENZENE	ETHYL- BENZENE	TOLUENE	TOTAL XYLENES	ACETONE	MEK
*104	<1/TR<1.0	<1	<1/<1.0	<1/TR<1.0	<10	<10
101	TR35	<5	<5	<5	<50	<50
102	8400	1200	2400	7300	3700	TR1800
103	TR1901	<25	TR12	<25	<250	<250
201	1600	140	650	260	1500	860
202	1600	280	1500	2200	<50	1000
203	24/24	TR2	TR1/1.3	TR2/6.0	<10	<10
204	16	<1	<1	<1	<10	<10
205	43/<1/10	<1/<5	<1/<5/TR<1.0	<1/5/TR<1.0	<1/TR11<10/TR250	
206	4600	78	3000	6200	3600	1600

\*Background well.

The background well (No. 104) showed trace of benzene concentration. However, benzene was detected in all the ground-water monitoring wells at the site. The highest benzene concentration was found in Well 102, located near the west end of the refinery near Lakeland Road. Benzene concentrations decreased in Wells 201, 202 and 206, located away from Well 102 in different directions. Well 206 is located downgradient from Well 102 at the southwest corner of the site. Other monitoring wells, including 101, 203, 204, and 205 showed benzene concentrations ranging from 16 to 43 ppb.

Ethylbenzene, toluene, and xylene were also detected in ground-water samples detecting benzene. The highest concentrations were observed in Wells 102, 201, 202, and 206. Acetone and 2-butanone (MEK) were found in water samples from Monitoring Wells 102, 201, 202, and 206. Traces of these two compounds were also found in Monitoring Well 205.

## 5.2 DEEP AQUIFERS

As mentioned previously, there are three deep production wells at the site completed to deeper underlying aquifers. These wells are operational, if needed, and were sampled by J. H. Kleinfelder & Associates in March and May of 1985. Copies of the original laboratory data are presented in Appendix C, and the analytical results are summarized in Tables 11 and 12.

depth 8  
see table 4

The water samples from the deep aquifers had a slightly basic pH and contained total dissolved solids (TDS) contents of 690 to 1100 ppm. These TDS values exceeded the recommended secondary drinking water standards. Ground-water samples from Wells 7 and 8 also exceeded drinking water standards for sulfate. Sulfate and TDS contents of the ground water from the deep aquifers are believed to be natural and not the result of any known contamination. Concentrations of most metals were below detection limits and none exceeded drinking water standards.

Concentrations of the dissolved organic compounds analyzed were all below detection limits (Table 12). Water samples from Production Wells 6, 7 and 8 showed no indication of any organic and/or inorganic contamination. Production Well 6 is located near Monitoring Well 206 (Figure 2), where concentrations of some dissolved organic compounds were observed in the ground water of the uppermost water-bearing zone. Absence of organic contamination in Well 6 indicates that vertical contaminant migration has not occurred to the depth at which the casing of Well 6 is perforated.

## 6.0 POTENTIAL SOURCES OF CONTAMINATION OF SOIL AND GROUND WATER

In this section, the most likely sources of chemical compounds in soil and ground water are tentatively identified and discussed. The source of hydrocarbons in the subsurface soil and ground water can only be generally defined. Several sources of hydrocarbon contamination at the site were identified during the site assessment. However, other contributing sources may have been operating in the past. The nature and possible impact of those sources are not presently known. In a refinery operating for more than 40 years, the above should be expected.

### 6.1 POSSIBLE SOURCES OF ORGANIC VAPOR PHASE

As mentioned in Section 4.2, organic vapor was detected in the shallow vapor monitoring wells. Most of these wells (302 through 306, and 308) were drilled near tanks with known past bottom leak or spill incidents. These incidents could have been the primary source of organic vapors in the unsaturated zone near these wells.

Well 307 was drilled near three underground gasoline and diesel fuel tanks. Hydrocarbons were not encountered in the soil samples from Well 307. However, high concentrations of organic vapors were detected in this well. This could be due to small leaks from these tanks or lateral migration of vapor phases from the area of Well 102.

### 6.2 POSSIBLE SOURCES OF CONTAMINATION OF SOIL AND GROUND WATER

Soil and ground water from Monitoring Well 102 showed the highest concentrations of some organic compounds, as discussed in Sections 4.1.2 and 5.1.3. According to Powerine's records, four to five gasoline tanks, with a capacity of 2,500 barrels each, were located north of Monitoring Well 102 in an area adjacent to a water tank (shown in Figure 2). In a 1963 air photo, several tanks in this area were identified as gasoline tanks. The tanks were removed in the mid-1960's after a fire. It was reported that gasoline and water were ponded on the ground in the area while gasoline burned for a few days.

Infiltration of gasoline into the soil during the fire incident, and perhaps leakage from the tanks prior to the fire, could account for contamination of soil and ground water in the area of Monitoring Well 102. In addition, several sumps were located in the area north of Monitoring Well 102. These sumps are shallow and concrete lined and contain water and some oily materials. These sumps could also have contributed to contamination of soil and presence of dissolved hydrocarbon compounds in the ground water through leaks and spills.

Vapor Monitoring Well 301 was drilled next to an underground API separator where oil and grease were removed from water. This tank is made of reinforced concrete which generally minimizes the leakage. The sample collected from 8.5 feet did not have any organic contamination, whereas, the two samples for 28.5 and 38.5 feet showed traces of some volatiles.

Monitoring Well 201 is located near an area where the surface is contaminated with heavy oil and tar. This could account for contamination of soil in the upper section of this well. Vapor Monitoring Well 302 is located near a diesel fuel tank which leaked and near several sumps (Figure 2). These are some likely sources of contamination observed in a soil sample from Well 302.

Monitoring Well 204 was drilled next to a light cut gasoline tank which leaked. The presence of some volatile organic compounds in a soil sample from this well could be due to this past leak incident.

Boring 402 and Well 301 were drilled in areas near two cooling towers. Thiocyanide has been used to inhibit growth of algae and prevent accumulation of slime in the towers. Accidental spills of thiocyanide-bearing water may account for the presence of cyanide in the soil samples from Boring 402 and Well 301. Other samples that showed some cyanide concentrations do not seem to be near any known source of cyanide.

The organic compounds detected in ground water samples (Section 5.0) may originate from downward migration in the unsaturated zone. The primary mechanisms include transport of liquid organics and migration of the dissolved phase by infiltration of water through the soil pore space. Another possible pathway for migration from the shallow zone to the ground water is through the abandoned wells. Presence of such wells has not yet been identified at the site. Detection of relatively high concentration of hydrocarbons in Well 102 indicates the presence of the primary source of contamination in the vicinity of that well.

It should be noted that the Powerine site is located in an area zoned for heavy industry, which includes oil production and storage. Several current and past oil production wells, as well as crude oil storage and transfer facilities are located in the areas north of the site. Based on present understanding of ground-water flow direction in the uppermost water-bearing zone, these facilities are located upgradient from the site, and many have contributed to the organic contamination of the ground water. The single upgradient monitoring well (104) at the site did not show any indication of significant hydrocarbon contamination of the ground water entering the site at the time of sampling. However, Well 104 may not represent the overall upgradient conditions.

## 7.0 SURVEY OF BENEFICIAL USES OF GROUND WATER

This section presents a survey of ground water uses in the vicinity of the site and of the water wells within a mile downgradient from the site. This survey was conducted to investigate any use of ground water in the area that could possibly be affected by the ground-water contamination at the site.

Currently, the area is served by several domestic water supply companies, including the cities of Santa Fe Springs and Norwalk Public Work Departments, Southern California Water Company, Park Water Company, and the Suburban Mutual Water Company. The source of water is from wells completed in the deep aquifers in the area.

For the purpose of this investigation, the available data on the water wells in the area from the Los Angeles County Flood Control District (LACFCD) files was reviewed. The LACFCD files showed that there have been a number of wells drilled in the area since about the turn of the century and before. These wells ranged in depth from about 20 feet to about 1,000 feet. These wells were primarily used for monitoring, farming, irrigation, and domestic purposes. The LACFCD files indicated that most of these wells were destroyed during the 50s and early 60s, perhaps due to residential and commercial development. Some of these wells were specified as abandoned and have not been in use for decades. A few wells were specified as capped and/or sealed, and are not in use. These wells were assumed to be abandoned.

The wells within one mile downgradient from the site, that were not specified as destroyed and/or abandoned, capped and/or sealed, are shown in Figure 10. The available information about these wells is provided in Table 13, and the condition of these wells are discussed below.

## FX-9: Wells

# FX-9: Wells

Based on the information obtained from the LACFCD files on the water wells in the area in the vicinity of the Powerine site and what is generally known about the area, it is concluded that the wells identified within a mile downgradient of the site are not expected to be affected by the present ground-water condition at the Powerine site. However, to ascertain this conclusion, the present conditions of Wells 1617J, 1617K, 1617N, 1627A, 1627E, and 1628A should be investigated further with regard to their existence and activities. In addition, the ground-water quality data from these wells should be collected and examined, if necessary.

REFERENCES

California Administrative Code, 1984, Title 22, Social Security, Division 4. Environmental Health, Distributed by State of California, Documents Section,

Ecology and Environment, Inc., August 5, 1985, Site Inspection Report, Powerine Oil Company.

Freeze, R. A. and J. A. Cherry, 1979, Groundwater, Prentice Hall, Inc., Englewood Cliffs, New Jersey, 604 pp.

State of California, Department of Water Resources, Southern District, 1961, Planned Utilization of the Ground Water Basins of the Coastal Plain of Los Angeles County, Appendix A, Ground Water Geology, Bulletin No. 104.

## 8.0 CONCLUSIONS

Absence of liquid hydrocarbons (free product) on the water table under the site is an indication that, presently, migration of liquid hydrocarbons to the ground water is not occurring. However, dissolved organic compounds were found in all the water monitoring wells (except the background well) completed in the uppermost water-bearing zone. Higher concentrations were observed in the southwest section of the site. Based on information obtained from the LACFCD files, it is concluded that water wells within one mile downgradient of the site are not expected to be affected by the present ground-water condition at the site.

Respectfully submitted,

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## TABLES

TABLE 1

CONTENT OF TANKS WITH KNOWN  
BOTTOM LEAK OR SPILL INCIDENTS

<u>TANK NO.</u>	<u>CONTENTS</u>
96090	Cycle Oil
40106	Topped Crude
40063	Diesel
27105	Topped Crude
27089	Diesel
20094	Light VAC Gas Oil
10096	Gasoline
10095	Light Cut Gasoline

TABLE 2

REFERENCE POINT ELEVATION (RELATIVE TO MSL) OF  
GROUND-WATER MONITORING WELLS

<u>WELL NO.</u>	<u>ELEVATION</u> (feet)
101	135.50
102	134.67
103	136.92
104	142.09
201	133.09
202	137.83
203	144.87
204	140.68
205	138.73
206	129.96

**TABLE 3**  
**ANALYTICAL METHODS USED FOR SOIL**  
**AND GROUND-WATER ANALYSES**

PARAMETER	METHOD	
	SOIL	GROUND WATER
Total Organic Carbon	<sup>EPA</sup> NA 9060	EPA 415.1
Oil and Grease	Standard 503	NA
Chlorides	NA	EPA 300.1
Sulfates	NA	EPA-300.1
Phenols	EPA 3550 followed by EPA 8040	EPA 420.1
Volatile Organics	EPA 8240	EPA 624
Total Organic Halogens	Standard 506	EPA 9020
Cyanide	EPA 9010	Standard 412B
Metals		
Arsenic	EPA 3050	EPA 206.2
Cadmium	EPA 3050	EPA 7130
Chromium	EPA 3050	EPA 218.1
Cobalt	EPA 3050	EPA 219.1
Lead	EPA 3050	EPA 239.1
Mercury	EPA 7471	EPA 245.1
Molybdenum	EPA 3050	EPA 246.1
Nickel	EPA 3050	EPA 249.1
Selenium	EPA 3050	EPA 270.2
Vanadium	EPA 3050	EPA 286.1
Zinc	EPA 3050	EPA 289.1

NA = Not applicable/Not analyzed

TABLE 4  
AVAILABLE DATA ON DEEP WATER PRODUCTION WELLS AT  
THE POWERINE SITE

WELL NO.	TOTAL DEPTH (feet)	DEPTH TO STATIC WATER LEVEL (feet)	PERFORATED INTERVAL (feet)	LOCATION
1	NA	NA	NA	NA
2	275	NA	NA	NA
3	266	NA	NA	NA
4	609	NA	580-600	NA
5	780	NA	NA	NA
6	840	109	NA	Figure 2
7	690	NA	450-530 600-690	Figure 2
8	994	75 (Jan. 84)	NA	Figure 2

NA - Data not available.

TABLE 5

TOTAL CONCENTRATIONS OF METALS IN SOIL SAMPLES  
COLLECTED FROM BORINGS AT DIFFERENT DEPTHS  
(All concentrations are in milligram/kilogram, ppm)

BORING	DEPTH (ft)	SAMPLE NO.	ARSENIC	CADMIUM	CHROMIUM	COBALT	LEAD	MERCURY	MOLY- BDENUM	NICKEL	SELE- NIUM	VANA- DIUM	ZINC
TTL	-	-	500	100	500	8000	1000	20	3500	2000	100	2400	5000
101	9.0-9.5	S-2	1.7	0.5	15	12	8	0.05	<7	20	<0.1	36	42
	13.5-14	S-3	1.9	0.4	19	12	8	0.05	<7	19	<0.1	32	45
	78.5-79	S-16	1.1	0.2	6.6	4.2	3	0.01	<7	5.4	<0.1	14	14
102	8.5-9.0	S-2	1.7	0.3	13	11	6.9	TR<0.01	<8	17	<0.1	36	40
	13.5-14.0	S-3	4.7	0.6	14	13	8.3	TR<0.01	<8	17	<0.1	40	42
	48.5-49.0	S-10	0.5	TR<0.2	6	4	4	0.03	<8	6	<0.1	10	19
	83.5-84.0	S-17	0.9	0.2	6.1	5.3	2	0.03	<8	6.1	<0.1	20	20
103	3.5-4.0	S-1	2.9	0.3	17	14	8.9	0.06	<8	18	<0.1	54	43
	13.5-14.0	S-3	1.4	TR<0.1	5.1	2.9	2.4	0.03	<8	4.3	<0.1	10	15
	83-83.5	S-17	1.1	0.1	6.8	4.9	4.1	0.3	<8	5.5	<0.1	14	19
104	2.5-3.0	S-1	2.5	0.6	25	15	12	0.03	<7	28	<0.1	47	51
	12.5-13.0	S-3	2.2	0.2	5.4	4.2	3	0.07	<7	6.4	<0.1	14	16
	8.5-85.5	S-17	1.3	0.3	10	5.1	4	0.03	<7	7.0	TR<0.1	22	17
201	8.5-9.0	S-2	0.2	TR<0.2	5	5	5	0.3	<8	8	<0.1	9	15
	83.5-84.0	S-9	2.5	0.2	12	10	8.7	0.04	<8	16	<0.1	33	46
202	9.0-9.5	S-2	0.9	0.6	12	11	10	0.07	<8	18	<0.2	30	44
	49.0-49.5	S-5	2	0.3	12	7.0	5	0.03	<8	12	<0.2	30	31
203	8.5-9.0	S-2	1.0	0.4	19	15	11	0.07	<8	25	<0.1	51	60
	13.5-14.0	S-3	0.8	TR<0.2	2.8	2.0	2.4	0.03	<8	3.8	<0.1	9.3	11
	88.5-89.0	S-18	0.8	TR<0.2	7.8	5.6	5.3	0.01	<8	9.7	<0.1	14	30
204	4.0-4.5	S-1	1	0.7	16	16	11	0.05	<8	23	<0.2	60	57
	69.0-69.5	S-7	0.3	0.4	7.5	4.7	5	0.005	<8	8.2	TR<0.2	20	42
205	8.5-9.0	S-2	0.8	0.5	15	14	9	0.05	<8	15	<0.1	35	51
	13.5-14.0	S-3	2	0.6	17	13	9	0.03	<8	15	<0.1	38	47
	68.5-69.0	S-7	6	0.3	7.3	5.8	5	0.03	<8	0.5	<0.1	18	26
206	8.5-9.0	S-2	1	0.8	16	13	9	0.03	<8	21	<0.2	40	72
	13.5-14.0	S-3	1	0.8	11	10	9	0.05	<8	17	<0.2	30	48
	68.5-69.0	S-7	2	0.5	13	9.9	8	0.08	<8	18	<0.2	40	43
301	8.5-9.0	S-2	0.9	0.4	15	12	8	0.05	<8	23	TR<0.1	39	4
	28.5-29.0	S-6	5.4	0.3	17	13	10	0.06	<8	20	<0.1	4	58
	38.5-39.0	S-8	2.3	0.3	21	14	10	0.05	<8	26	<0.05	40	57
302	8.5-9.0	S-2	1.6	0.3	21	13	10	0.03	<8	22	<0.05	40	55
	38.5-39.0	S-8	0.73	0.2	17	12	8	0.02	<8	23	<0.05	30	52
303	14.0-14.5	S-3	2	0.8	5.5	4.2	4	0.03	<8	7.1	<0.2	20	19
	29.0-29.5	S-6	2	0.4	7.6	6.4	6	0.02	<8	15	<0.2	20	30
304	8.5-9.0	S-2	1.8	0.2	6.6	5.4	4	0.03	<8	8.2	<0.1	20	20
	38.5-39	S-8	0.3	TR<0.2	5.3	4.5	2	0.03	<8	5.2	<0.1	20	20
305	8.5-9.0	S-2	0.8	0.2	11	8.0	4	0.07	<8	11	<0.1	30	30
	38.5-39	S-8	1.0	TR<0.2	6.3	4.1	2	0.02	<8	4.7	<0.1	20	20
306	8.5-9.0	S-2	0.8	0.2	8.7	7.8	5	0.04	<8	11	<0.1	30	30
	38.5-39	S-8	2.4	0.2	7.0	6.0	2	0.03	<8	8.7	<0.1	20	20
307	8.5-9.0	S-2	2	0.6	22	14	11	0.04	<8	20	<0.01	46	52
	38.5-39.0	S-8	0.7	0.6	21	14	10	0.06	<8	9	<0.01	59	59
308	8.5-9.0	S-2	2.2	0.3	10	9	9	0.09	<8	17	<0.05	30	38
	38.5-9.0	S-8	1.9	0.2	10	8	5	0.03	<8	13	<0.05	30	38
309	8.5-9.0	S-2	1.8	TR<0.2	6	5	5	0.04	<8	7	<0.1	20	23
	38.5-39.0	S-8	0.8	<0.2	7	4	3	0.02	<8	5	<0.1	10	15
401	18.5-9.0	S-4	2.4	<0.2	4	3	3	0.03	<8	5	<0.1	10	16
	38.5-39.0	S-8	2.4	0.2	17	13	10	0.02	<8	20	<0.1	30	47
402	8.5-9.0	S-2	5.5	TR<0.2	9	7	5	0.05	<8	10	<0.1	30	33
	33.5-34.0	S-7	9.8	TR<0.2	9	7	6	0.02	<8	10	<0.1	30	27

TABLE 6  
CONCENTRATIONS OF  
VOLATILE ORGANIC COMPOUNDS ON  
EPA HAZARDOUS SUBSTANCES LIST  
IN SOIL SAMPLES COLLECTED FROM BORINGS AT DIFFERENT DEPTHS  
(All concentrations are in microgram/kilogram, ppb)

BORING	DEPTH (ft)	SAMPLE NO.	BENZENE*	ETHYL- BENZENE*	TOLUENE*	TOTAL XYLENES	METHYLENE CHLORIDE*	TETRA- CHLORO- ETHENE*	2- BUTANONE
101	9.0-9.5	S-2	<5	<5	<5	<5	<5	<5	<50
	13.5-14.0	S-3	<5	<5	<5	<5	<5	<5	<50
	70.5-79.0	S-16	<5	<5	<5	<5	<5	<5	<50
102	8.5-9.0	S-2	390	390	1400	TR19	<5	<5	<50
	13.5-14.0	S-3	260	220	100	TR26	130	<5	<50
	18.5-19.0	S-4	230	290	510	1200	<5	<5	<50
	20.5-29.0	S-6	<63	1500	TR430	4100	<63	<63	<50
	43.5-44.0	S-9	<5	<5	<5	TR12	<5	<5	<50
	48.5-49.0	S-10	78	1100	3200	2300	210	<5	<50
	58.5-59.0	S-12	<5	<5	<5	<5	<5	<5	<50
	73.5-74.0	S-15	<5	<5	<5	<5	230	<5	TR70
	83.5-84.0	S-17	<5	<5	<5	TR23	100	<5	<50
103	3.5-4.0	S-1	<5	<5	<5	<5	100	<5	<50
	13.0-13.5	S-3	<5	<5	<5	<5	<5	<5	<50
	83.0-83.5	S-17	<5	<5	<5	<5	<5	<5	<50
104	2.5-3.0	S-1	<5	<5	<5	<5	<5	<5	<50
	12.5-13.0	S-3	<5	<5	<5	<5	<5	<5	<50
	85.0-85.5	S-17	<5	<5	<5	<5	<5	<5	<50
201	8.5-9.0	S-2	<5	TR11	260	87	<5	<5	<50
	83.5-84.0	S-9	<5	<5	<5	<5	<5	<5	<50
202	9.5-10.0	S-2	<5	<5	<5	<5	<5	<5	<50
	49.5-50.0	S-5	<5	<5	<5	<5	<5	<5	<50
203	8.5-9.0	S-2	<5	<5	<5	<5	<5	<5	<50
	13.5-14.0	S-3	<5	<5	<5	<5	<5	<5	<50
	88.5-89.0	S-18	<5	<5	<5	<5	<5	<5	<50
204	4.5-5.0	S-1	<25	320	320	4400	<25	<25	<250
	68.5-69.0	S-7	<5	<5	<5	<5	<5	<5	<50
205	8.5-9.0	S-2	<5	<5	<5	<5	<5	<5	<50
	14.0-14.5	S-3	<5	<5	<5	<5	<5	<5	<50
	68.5-69.0	S-7	<5	<5	<5	<5	<5	<5	<50
206	8.5-9.0	S-2	<5	<5	<5	<5	<5	<5	<50
	13.5-14.0	S-3	<5	<5	<5	<5	<5	<5	<50
	68.5-69.0	S-7	<5	<5	<5	<5	<5	<5	<50
301	8.5-9.0	S-2	<5	<5	<5	<5	<5	<5	<50
	28.5-29.0	S-6	<130	<130	<130	TR<1000	<130	<130	<1300
	38.5-39.0	S-8	<25	TR<170	<25	TR<190	<25	<25	<250
302	8.5-9.0	S-2	<5	<5	<5	<5	<5	<5	<50
	38.5-39.0	S-8	<5	<5	<5	<5	<5	<5	<50
303	14.0-14.5	S-3	<5	<5	<5	<5	<5	<5	<50
	29.0-29.5	S-6	<5	<5	<5	<5	<5	<5	<50
304	8.5-9.0	S-2	<5	<5	<5	<5	<5	<5	<50
	38.5-39.0	S-8	<5	<5	<5	<5	<5	<5	<50
305	8.5-9.0	S-2	<5	<5	<5	<5	<5	<5	<50
	38.5-39.0	S-8	<5	<5	<5	<5	<5	<5	<50
306	8.5-9.0	S-2	<5	<5	<5	<5	<5	<5	<50
	38.5-39.0	S-8	<5	<5	<5	<5	<5	<5	<50
307	8.5-9.0	S-2	<5	<5	<5	<5	<5	<5	<50
	38.5-39.0	S-8	<5	<5	<5	<5	<5	<5	<50
308	8.5-9.0	S-2	<5	<5	<5	<5	<5	<5	<50
	38.5-39.0	S-8	<5	<5	<5	<5	<5	<5	<50
309	8.5-9.0	S-2	<5	<5	<5	<5	150	230	<50
	38.5-39.0	S-8	<5	<5	<5	<5	<5	<5	<50
401	18.5-19.0	S-4	<5	<5	<5	<5	140	<5	<50
	38.5-39.0	S-8	<5	<5	<5	<5	<5	<5	<50
402	8.5-9.0	S-2	<5	<5	<5	<5	<5	<5	<50
	33.5-34.0	S-7	<5	<5	<5	<5	<5	<5	<50

TR - Trace; this compound was present, but was below the level at which the concentration could accurately be determined. The approximate concentration is reported for reference.  
\* - This compound is also on EPA Priority Pollutant List.

TABLE 6A

CONCENTRATIONS OF OTHER  
VOLATILE ORGANIC COMPOUNDS IN SOIL  
COLLECTED FROM BORINGS AT DIFFERENT  
(All concentrations are in microgram/Ki

BORING	DEPTH (ft)	SAMPLE NO.	2-METHYL- BUTANE	PENTANE	CYCLO- HEXANE	METHYLCY- CLOPENTANE	2,3- DIMETHYL- BUTANE	HEXANE	BUTANE	UNKNOWN HYDRO- CARBONS
101	9.0-9.5	S-3	<5	<5	<5	<5	<5	<5	<5	<5
	13.5-14.0	S-3	<5	<5	<5	<5	<5	<5	<5	<5
	78.5-79.0	S-16	<5	<5	<5	<5	<5	<5	<5	<5
102	8.5-9.0	S-2	100	100	300	400	60	40	<5	380
	13.5-14.0	S-3	300	200	200	300	<del>600</del> 60	50	60	290
	18.5-19.0	S-4	<5	<5	<5	<5	<5	<5	<5	2000
	28.5-29.0	S-6	<5	<5	<5	<5	<5	<5	<5	1400
	43.5-44.0	S-9	<5	<5	<5	<5	<5	<5	<5	<5
	48.5-49.0	S-10	<5	<5	100	100	<5	<5	<5	1330
	58.5-59.0	S-12	<5	<5	<5	<5	<5	<5	<5	170
	73.5-74.0	S-15	<5	<5	<5	<5	<5	<5	<5	<5
	83.5-84.0	S-17	<5	<5	<5	<5	<5	<5	<5	<5
	88.5-89.0	S-18	<5	<5	<5	<5	<5	<5	<5	<5
301	8.5-9.0	S-2	<5	<5	<5	<5	<5	<5	<5	<5
	28.5-29.0	S-5	<5	<5	<5	360	<5	<5	<5	5260
	38.5-39.0	S-8	<5	<5	<5	<5	<5	<5	<5	200
300	38.5-39.0	S-8	<5	<5	<5	<5	<5	<5	<5	<25

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TABLE 6A

CONCENTRATIONS OF OTHER  
COMPOUNDS IN SOIL SAMPLES  
BORINGS AT DIFFERENT DEPTHS  
(Concentration in microgram/Kilogram, ppb)

BUTANE	UNKNOWN HYDRO- CARBONS	1,1,3- TRIMETHYL- CYCLOHEXANE	2-METHYL HEPTANE	2,2,3,4- METHYL -PENTANE	METHYL- CYCLOHEXANE	2-METHYL HEXANE	DIETHYL- ETHER	PYRAZINE	OCTANE
<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
<5	<5	<5	<5	<5	<5	<5	25	<5	<5
<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
<5	380	<5	<5	<5	<5	<5	<5	<5	<5
60	290	<5	<5	<5	<5	<5	<5	<5	<5
<5	2000	<5	<5	<5	380	<5	<5	<5	<5
<5	1400	<5	<5	900	<5	<5	<5	<5	<5
<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
<5	1830	2000	<5	<5	<5	<5	<5	<5	<5
<5	170	40	<5	<5	<5	30	<5	<5	<5
<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
<5	5260	1900	2500	<5	<5	<5	<5	<5	<5
<5	200	500	600	<5	<5	<5	<5	<5	300
<5	<25	<25	<25	<5	<5	<5	<5	20	<25

TABLE 7  
CONCENTRATIONS OF PHENOLS, CYANIDE,  
OIL AND GREASE, AND TOTAL ORGANIC HALOGENS (TOX)  
IN SOIL SAMPLES COLLECTED FROM  
BORINGS AT DIFFERENT DEPTHS  
(Concentrations as indicated)

BORING	DEPTH (ft)	SAMPLE NO. (ug/Kg)	2,4- DIMETHYL- PHENOL (ug/Kg)	2,4- DICHLORO- PHENOL (ug/Kg)	2,4,6- TRICHLORO- PHENOL (ug/Kg)	4-CHLORO- 3-METHYL- PHENOL (ug/Kg)	2-NITRO PHENOL (ug/Kg)	CYANIDES (mg/Kg)	OIL AND GREASE (mg/Kg)	TOX (mg/Kg)
101	9.0-9.5	S-2	<1	<1	<1	<1	<1	<0.2	60	5.8
	13.5-14.0	S-3	<1	<1	<1	<1	<1	2	71	57
	78.5-79.0	S-16	<1	<1	<1	<1	<1	<0.2	82	27
102	8.5-9.0	S-2	TR<10	<10	<10	<10	<10	<0.2	32,000	<20
	13.5-14.0	S-3	<100	200	<100	<100	<100	<0.2	8,100	<20
	48.5-49.0	S-10	TR<10	118	<10	<10	12	<0.2	1,500	<15
103	3.5-4.0	S-1	<1	<1	<1	<1	<1	<0.2	77	26
	13.0-13.5	S-3	<1	<1	<1	<1	<1	<0.2	21	<20
	83.0-83.5	S-17	<1	<1	<1	<1	<1	<0.2	18	<20
104	2.5-3.0	S-1	<1	<1	<1	<1	<1	<0.2	49	<1
	12.5-13.0	S-3	<1	<1	<1	<1	<1	<0.2	59	<1
	85.0-85.5	S-17	*	*	*	*	*	0.2	*	<1
201	8.5-9.0	S-2	TR<100	178	<1	<1	TR<100	0.9	11,000	17
	83.5-84.0	S-9	<1	<1	<1	<1	<1	<0.2	<20	<15
202	9.5-10.0	S-2	<1	<1	<1	<1	<1	<0.2	<20	<14
	49.5-50.0	S-5	<1	<1	<1	<1	<1	<0.2	<20	<14
203	8.5-9.0	S-2	<1	<1	<1	<1	<1	<0.2	<20	<15
	13.5-14.0	S-3	<1	<1	<1	<1	<1	<0.2	TR<20	<15
	88.5-89.0	S-18	<1	<1	<1	<1	<1	1.5	TR<20	<15
204	4.5-5.0	S-1	<2	<2	<2	<2	<2	<0.2	<20	<14
	68.5-69.0	S-7	<1	<1	<1	<1	<1	<0.2	TR<20	22
205	8.5-9.0	S-2	<1	<1	<1	<1	<1	<0.2	20	<17
	14.0-14.5	S-3	<1	<1	<1	<1	<1	<0.2	36	<17
	68.5-69.0	S-7	<1	<1	<1	<1	<1	<0.2	35	<17
206	8.5-9.0	S-2	<1	<1	<1	<1	<1	<0.2	TR<20	19
	13.5-14.0	S-3	<1	<1	<1	<1	<1	<0.2	TR<20	<14
	68.5-69.0	S-7	<1	<1	<1	<1	<1	<0.2	TR<20	23
301	8.5-9.0	S-2	<1	<1	<1	<1	<1	2	14	<15
	28.5-29.0	S-6	<1	<1	<1	<1	<1	0.7	36	<15
	38.5-39.0	S-8	<1	<1	<1	<1	<1	<0.2	12	<15
302	8.5-9.0	S-2	TR<10	104	TR<10	TR<10	<10	<0.2	5,060	22
	38.5-39.0	S-8	<1	<1	<1	<1	<1	<0.2	<1	<15
303	14.0-14.5	S-3	<1	<1	<1	<1	<1	<0.2	<20	17
	29.0-29.5	S-6	<1	<1	<1	<1	<1	<0.2	<20	<14
304	8.5-9.0	S-2	<1	<1	<1	<1	<1	<0.2	51	<20
	38.5-39.0	S-8	<1	<1	<1	<1	<1	<0.2	86	<20
305	8.5-9.0	S-2	<1	<1	<1	<1	<1	<0.2	28	<20
	38.5-39.0	S-8	<2	27	4	<2	<2	<0.2	42	<20
306	8.5-9.0	S-2	<1	<1	<1	<1	<1	<0.2	20	<20
	38.5-39.0	S-8	<1	<1	<1	<1	<1	<0.2	5.3	<20
307	8.5-9.0	S-2	<1	<1	<1	<1	<1	<0.2	20	<17
	38.5-39.0	S-8	<1	<1	<1	<1	<1	1.4	26	<17
308	8.5-9.0	S-2	<1	<1	<1	<1	<1	<0.2	6	<15
	38.5-39.0	S-8	<1	<1	<1	<1	<1	<0.2	1	<15
309	8.5-9.0	S-2	<1	<1	<1	<1	<1	<0.2	<10	17
	38.5-39.0	S-8	<1	<1	<1	<1	<1	<0.2	20	<15
401	18.5-19.0	S-4	<1	<1	<1	<1	<1	0.9	40	<15
	38.5-39.0	S-8	<1	<1	<1	<1	<1	<0.2	TR<10	<15
402	8.5-9.0	S-2	<1	<1	<1	<1	<1	1.1	940	29
	33.5-34.0	S-7	<1	<1	<1	<1	<1	4	<10	<15

TR - Trace; this compound was present, but was below the level at which the concentration could accurately be determined. The approximate concentration is reported for reference.

NA - Not Analyzed.

\* - Not Analyzed; insufficient sample.

TABLE 8  
RESULTS OF VAPOR WELL MONITORING

WELL/ LOCATION	TLV(a) (ppm)	ODOR
301	8200	Yes
Background	180	No
302	>10,000	Yes
303	8,200	Yes
304	4,800	Yes
305	5,900	Yes
306	9,000	Yes
Background	65	No
307	>10,000	Yes
Background	75	No
308	6,600	Yes
309	4,000	Yes

NOTES:

- (a) Threshold Limit Value, measured by a Bacharach Instrument TLV sniffer, calibrated to Hexane.

TABLE 9

GROUND WATER QUALITY DATA, INORGANIC  
CYANIDE, PHENOLS, TOTAL ORGANIC CARBON  
TOTAL ORGANIC HALOGENS

(All concentrations are in milligram/liter per liter)

PARAMETER	101	102	103	104	MONITORING WELL 201
Arsenic	0.09	0.08	<0.005	TR<0.02	0.07
Cadmium	TR<0.03	TR<0.03	TR<0.03	<0.03	TR<0.03
Chloride	290	220	710	1200	350
Chromium	<0.08	<0.08	<0.08	<0.06	<0.08
Cobalt	<0.2	<0.2	<0.1	<0.1	<0.2
Lead	<0.2	<0.2	<0.2	<0.2	<0.2
Mercury	<0.01	<0.01	<0.01	<0.01	<0.01
Molybdenum	<0.8	<0.8	<0.8	<0.8	<0.8
Nickel	TR<0.1	TR<0.1	TR<0.1	<0.1	TR<0.1
Selenium	<0.01	<0.01	<0.01	<0.005	<0.01
Sulfate	175	5	<0.5	5	49
Vanadium	<1	<1	<1	<2	<1
Zinc	0.1	0.1	0.09	0.04	0.1
pH (Unit)	6.90	6.85	7.00	7.00	6.70
Specific Conductance (micromhos/cm)	1900	1830	2480	3500	2080
Cyanide	<0.1	<0.1	<0.1	<0.01	<0.1
Phenol	<0.1	6.8	<0.1	--	0.1
TOC	5	18	12	30	37
TOX	0.13	0.22	0.06	0.25	<0.05

POW:0009-R1T9

from pumping  
the oil  
and dumping  
the sludge water

TABLE 9

ND WATER QUALITY DATA, INORGANIC SPECIES,  
 , PHENOLS, TOTAL ORGANIC CONTENT (TOC), AND  
 TOTAL ORGANIC HALOGENS (TOX)  
 ns are in milligram/liter ppm, unless noted otherwise)

MONITORING WELL NUMBER						
104	201	202	203	204	205	206
TR<0.02	0.07	0.01	TR<0.02	<0.005	0.05	0.02
<0.03	TR<0.03	TR<0.03	0.06	TR<0.03	TR<0.03	TR<0.03
1200	350	90	730	420	234	300
<0.06	<0.08	<0.08	<0.06	<0.08	<0.08	<0.08
<0.1	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2
<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
<0.1	TR<0.1	TR<0.1	<0.1	TR<0.1	TR<0.1	TR<0.1
<0.005	<0.01	<0.01	<0.005	<0.01	<0.01	<0.01
5	49	<5	1	5	91	36
<2	<1	<1	<2	<1	<1	<1
0.04	0.1	0.06	0.02	0.1	0.07	0.08
7.00	6.70	6.75	6.90	6.90	6.90	6.85
3500	2080	2560	2075	1900	1660	1910
<0.01	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
--	0.1	1.9	<0.1	<0.1	--	0.4
30	37	340	28	9	4	9
0.25	<0.05	<0.05	<0.05	0.06	<0.05	0.06

TABLE 10  
GROUND WATER QUALITY DATA, VOLATILE ORGANIC  
EPA HAZARDOUS SUBSTANCES LIST  
(All concentrations are in microgram/lit)

WELL NO.	BENZENE*	ETHYL- BENZENE*	TOLUENE*	TOTAL XYLENES	1,2-DICHLORO- ETHANE* (EDC)	METHYLENE CHLORIDE*	AC
101	TR35	<5	<5	<5	<5	<5	
102	8400	1200	2400	7300	TR230	<5	3
103	TR190	<25	TR12	<25	<25	<25	<
104	<1 (TR<1.0)	<1	<1 (<1.0)	<1 (TR<1.0)	<1	<1	
201	1600	140	650	260	<5	<5	1
202	1600	280	1500	2200	TR28	130	
203	24 (24)	TR2	TR1 (1.3)	TR2 (6.0)	<1	<1	
204	16	<1	<1	<1	43	<1	
205	43/ <1 (10)	<1/ <5	<1/ <5 (TR<1.0)	<1/ <5 (TR<1.0)	<1/ <5	<1/ <5	T
206	4600	78	3000	6200	<5	<5	3

- \* - These Compounds are also included in EPA priority pollutant list.  
/ - Duplicate analysis (EPA Method 624).  
( ) - Duplicate analysis (EPA Method 602).  
TR - Trace, this compound was present, but was below the level at which concentration was reported.  
The reported value is for reference.

TABLE 10

WATER QUALITY DATA, VOLATILE ORGANIC COMPOUNDS ON  
EPA HAZARDOUS SUBSTANCES LIST  
concentrations are in microgram/liter, ppb)

TOTAL XYLENES	1,2-DICHLORO- ETHANE* (EDC)	METHYLENE CHLORIDE*	ACETONE	2-BUTANE (MEK)	2-HEXANONE	4-METHYL- 2-PENTANONE (MIK)
<5	<5	<5	<50	<50	<5	<5
7300	TR230	<5	3700	TR1800	<25	<25
<25	<25	<25	<250	<250	<25	<25
<1 (TR<1.0)	<1	<1	<10	<10	<1	<1
260	<5	<5	1500	860	<5	<5
2200	TR28	130	<50	1000	51	<5
TR2 (6.0)	<1	<1	<10	<10	<1	<1
<1	43	<1	<10	<10	<1	<1
<1/ <5 (TR<1.0)	<1/ <5	<1/ <5	<1 TR11	<10/ TR250	<1/ <5	<1/ TR9
6200	<5	<5	3600	1600	<5	<5

PA priority pollutant list.

was below the level at which concentration could be determined.

TABLE 10A

GROUND WATER QUALITY DATA, VOLATILE ORGANIC  
(All concentrations are in microgram/liter)

WELL NO.	BUTANE	2-BUTENE	CYCLO- HEXANE	CYCLO- HEXENE	CYCLO- PENTENE	2,3- DIMETHYL BUTANE	2,3- DIMETHYL PENTANE	ETHYL CYCLO- BUTANE	2- METHYL BUTANE	2-METHYL 2-BUTENE	METHYL CYCLO- PENTANE
101	<5	<5	<5	<5	<5	20	<5	<5	50	<5	<5
102	<5	<5	60	<5	<5	<5	<5	<5	<5	<5	60
103	<5	<5	<5	<5	<5	<5	<5	<5	100	<5	<5
104	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
201	<5	<5	30	30	<5	<5	<5	90	<5	70	<5
202	100	40	<5	<5	40	<5	<5	<5	<5	90	100
203	<5	<5	<5	<5	<5	10	6	<5	8	<5	<5
204	<5	<5	<5	<5	<5	<5	15	<5	<5	<5	<5
205	<5	<5	<5	<5	<5	10/3	<5	<5	<5	<5	<5
206	<5	100	<5	<5	<5	<5	<5	<5	<5	200	200

/ - Duplicate analyses.

TABLE 10A

WATER QUALITY DATA, VOLATILE ORGANIC COMPOUNDS  
concentrations are in microgram/liter, ppb).

ETHYL CYCLO- BUTANE	2- METHYL BUTANE	2-METHYL 2-BUTENE	METHYL CYCLO- PENTANE	3- METHYL PENTANE	2-METHYL PROPANE	PENTANE	PROPYL CYCLO- PROPANE	TRANS,1,2- DIMETHYL CYCLOPENTANE	2,2,4- TRIMETHYL PENTANE	1,1,3- TRIMETHYL CYCLOPENTANE	UNKNOWN HYDRO- CARBONS
<5	50	<5	<5	<5	50	<5	<5	40	<5	30	<5
<5	<5	<5	60	<5	<5	40	<5	<5	<5	<5	<5
<5	100	<5	<5	<5	900	<5	100	<5	<5	<5	<5
<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
90	<5	70	<5	<5	80	<5	<5	<5	<5	<5	<5
<5	<5	90	100	<5	40	70	<5	<5	<5	<5	<5
<5	8	<5	<5	<5	<5	<5	<5	<5	<5	9	140
<5	<5	<5	<5	<5	<5	<5	<5	<5	44	<5	7
<5	<5	<5	<5	10/<5	10/<5	1	<5	<5	<5	<5/2	<5/44
<5	<5	200	200	<5	100	<5	<5	<5	<5	<5	60

TABLE 11  
INORGANIC PARAMETERS AND SURFACTANTS IN  
GROUND WATER SAMPLES COLLECTED FROM  
PRODUCTION WELLS

(All concentrations are in milligram/liter, unless specified otherwise)

PARAMETER	PRODUCTION WELL NO.		
	#6	#7	#8
Alkalinity (total as CaCO <sub>3</sub> )	530	330	350
Arsenic	<0.003	<0.004	<0.004
Barium	<0.33	<0.3	<0.3
Cadmium	<0.0002	0.0046	<0.0002
Calcium	60	94	110
Chromium	<0.0005	<0.0005	<0.0005
Chloride	86	140	110
Copper	<0.09	<0.10	<0.10
Fluoride	0.17	0.17	0.24
Iron	0.25	0.20	<0.15
Lead	<0.0046	<0.003	<0.003
Magnesium	15	46	35
Manganese	<0.05	<0.05	0.05
Mercury	<0.001	<0.001	<0.001
Nitrate	1.9	<0.44	<0.44
Potassium	3.2	5.7	6.6
Selenium	<0.007	<0.0054	<0.0054
Silver	<0.064	<0.05	<0.05
Sodium	150	210	170
Sulfate	140	300	390
Sulfide	NA	<0.1	<0.1
Zinc	0.07	0.05	<0.025
pH (units)	7.4	7.7	7.7
Specific Conductance (micromhos/cm)	880	1600	1400
Filtrable Residue	690	1100	940
Surfactants	<0.1	<0.1	<0.1

Reference: J. H. Kleinfelder & Associates, July 1985.

TABLE 12  
PURGEABLE PRIORITY POLLUTANT ORGANIC COMPOUNDS  
AND TOTAL FUEL HYDROCARBONS IN  
GROUND WATER SAMPLES COLLECTED FROM PRODUCTION WELLS  
(Concentrations as indicated)

PARAMETER	UNITS	PRODUCTION WELL NUMBER		
		#6	#7	#8
Acrolein	µg/l	<10	<10	<10
Acrylonitrile	µg/l	<10	<10	<10
Other Purgeable Priority Pollutants	µg/l	<1	<1	<1
Total Fuel Hydrocarbons	mg/l	<1	<1	<1

Reference: J. H. Kleinfelder & Associates, July 1985.

TABLE 13  
DATA ON WELLS LOCATED WITHIN A MILE DOWNGRAIENT  
FROM THE POWERINE SITE

WELL NO.	DEPTH (ft.)	PERFORATED INTERVAL (ft.)	INTENDED USE	PRESENT USE	OWNER	COMMENTS
1617J	237	193-216	Irrigation	N.K.	S.C.W.C.	Expected to be currently in use for public supply purposes.
1617K	252	194-218	Public Supply	N.K.	S.C.W.C.	Expected to be currently in use.
1617N	565	196-206 460-472	Public Supply	N.K.	S.C.W.C.	Expected to be currently in use.
1627E	450	N.D.	N.K.	N.K.	George Abe 1180 S. Norwalk Blvd.	Confidential file.
1628A	215	N.D.	Irrigation	None	*	Apparently destroyed.
1627A	N.D.	N.D.	N.D.	N.D.	N.D.	Appears to be a shallow well and perhaps destroyed.

N.K. = Not Known.

N.D. = No Data Available.

\* = This well used to be owned by Norwalk (Metropolitan) State Hospital. It was located in the present parking lot/building area of Norwalk City Hall and is apparently destroyed by construction work.

## FIGURES

FIGURES

DRAWN BY  
11-1-86  
CHECKED BY  
7-19-85  
APPROVED BY  
7-19-85  
DRAWING NUMBER  
850009-A1

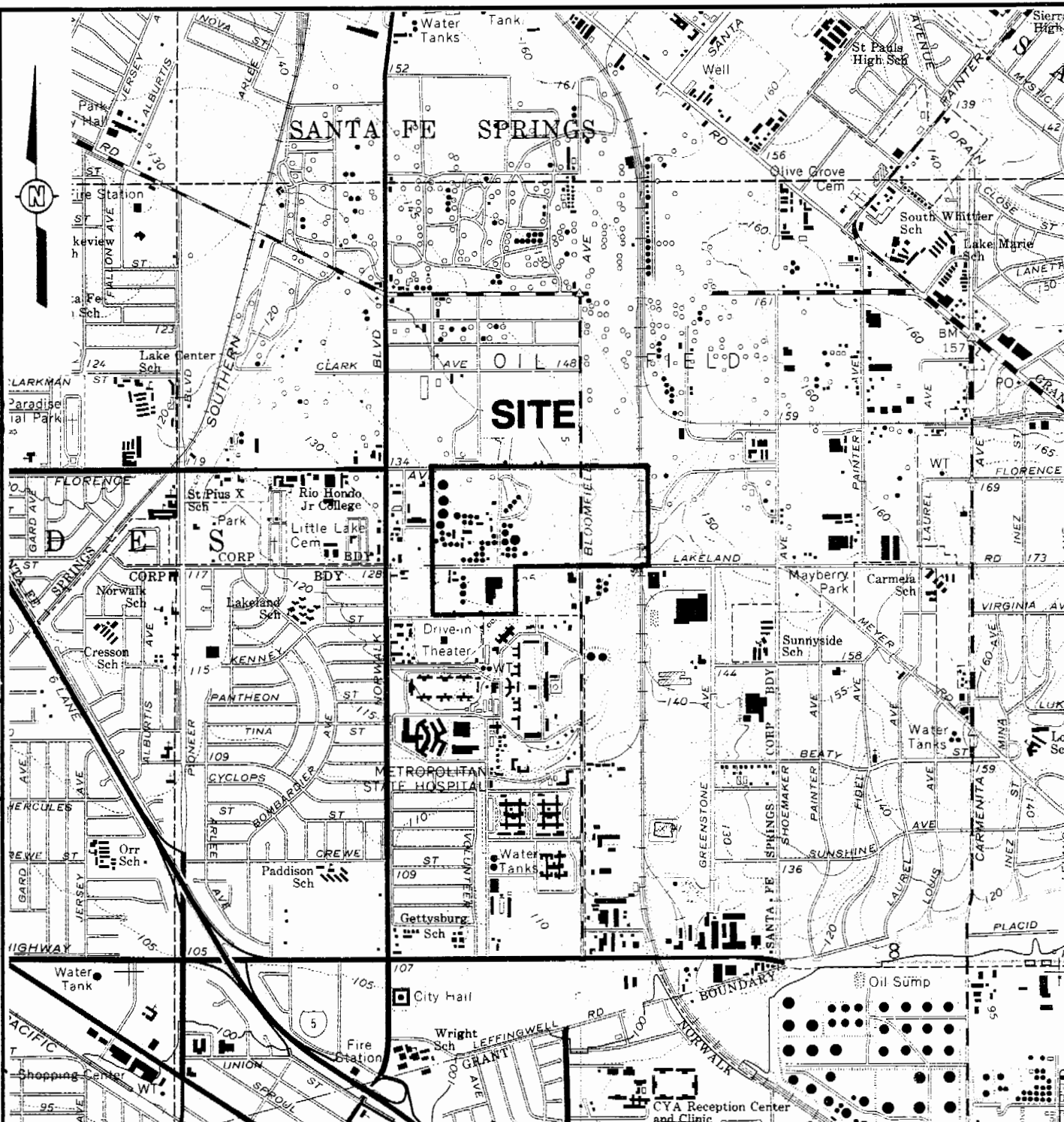


FIGURE 1

# SITE VICINITY MAP

PREPARED FOR

POWERINE OIL COMPANY  
SANTA FE SPRINGS, CALIFORNIA

REFERENCE:  
7.5 MINUTE USGS TOPOGRAPHIC MAP OF  
WHITTIER, CALIFORNIA, QUADRANGLE  
DATE: 1965, PHOTO REVISED 1981  
SCALE: 1" = 2000'



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85009-A4

DRAWING  
NUMBER

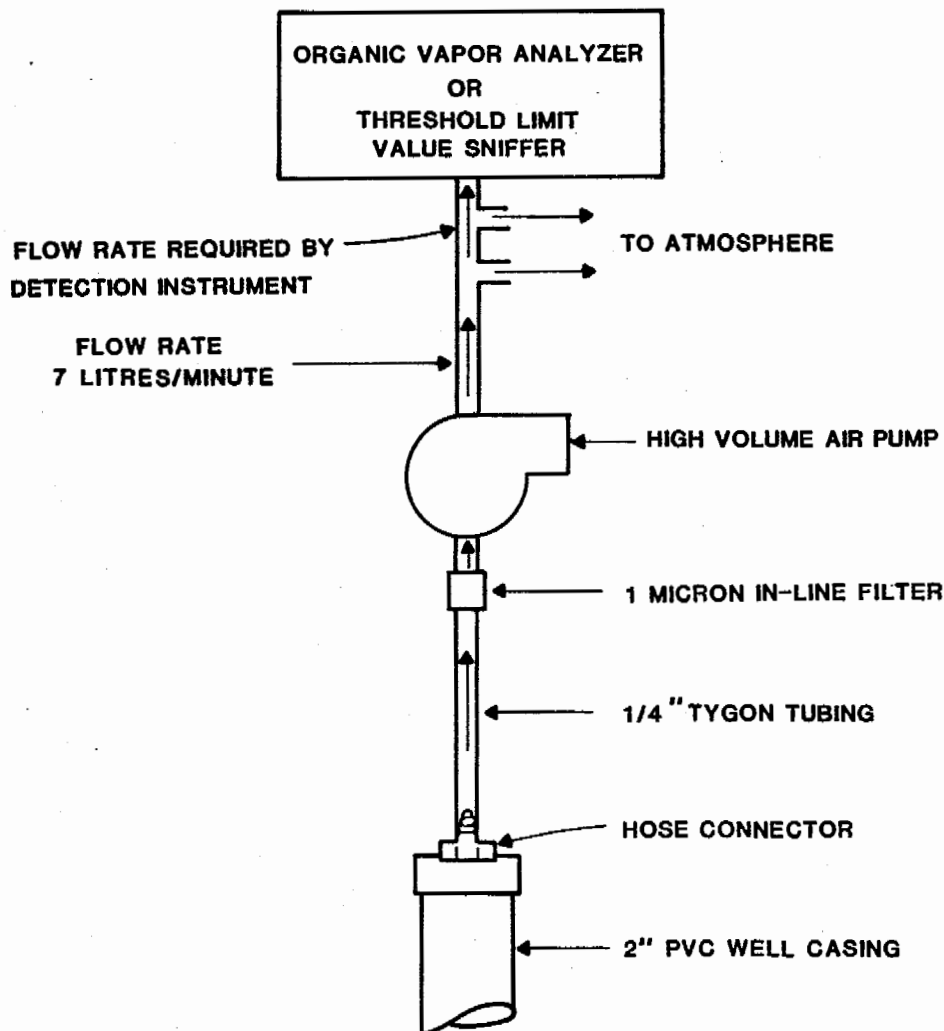
11/11/85  
H/11/85

CHECKED BY  
H/11/85

APPROVED BY  
H/11/85

HDS  
11-11-85

DRAWN  
BY

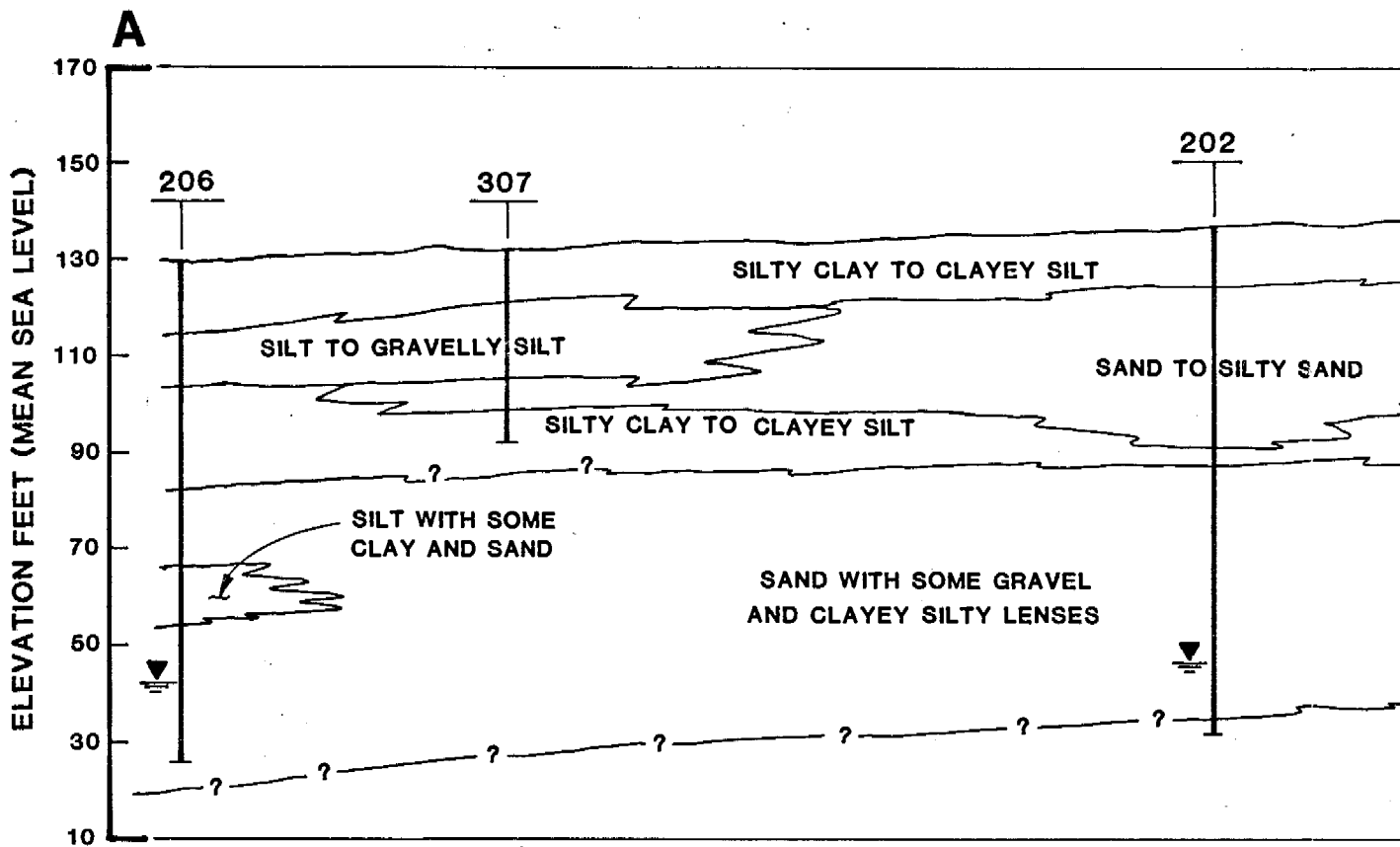


**FIGURE 5**

**SOIL VAPOR  
MONITORING APPARATUS**

PREPARED FOR

**POWERINE OIL COMPANY  
SANTA FE SPRINGS, CALIFORNIA**

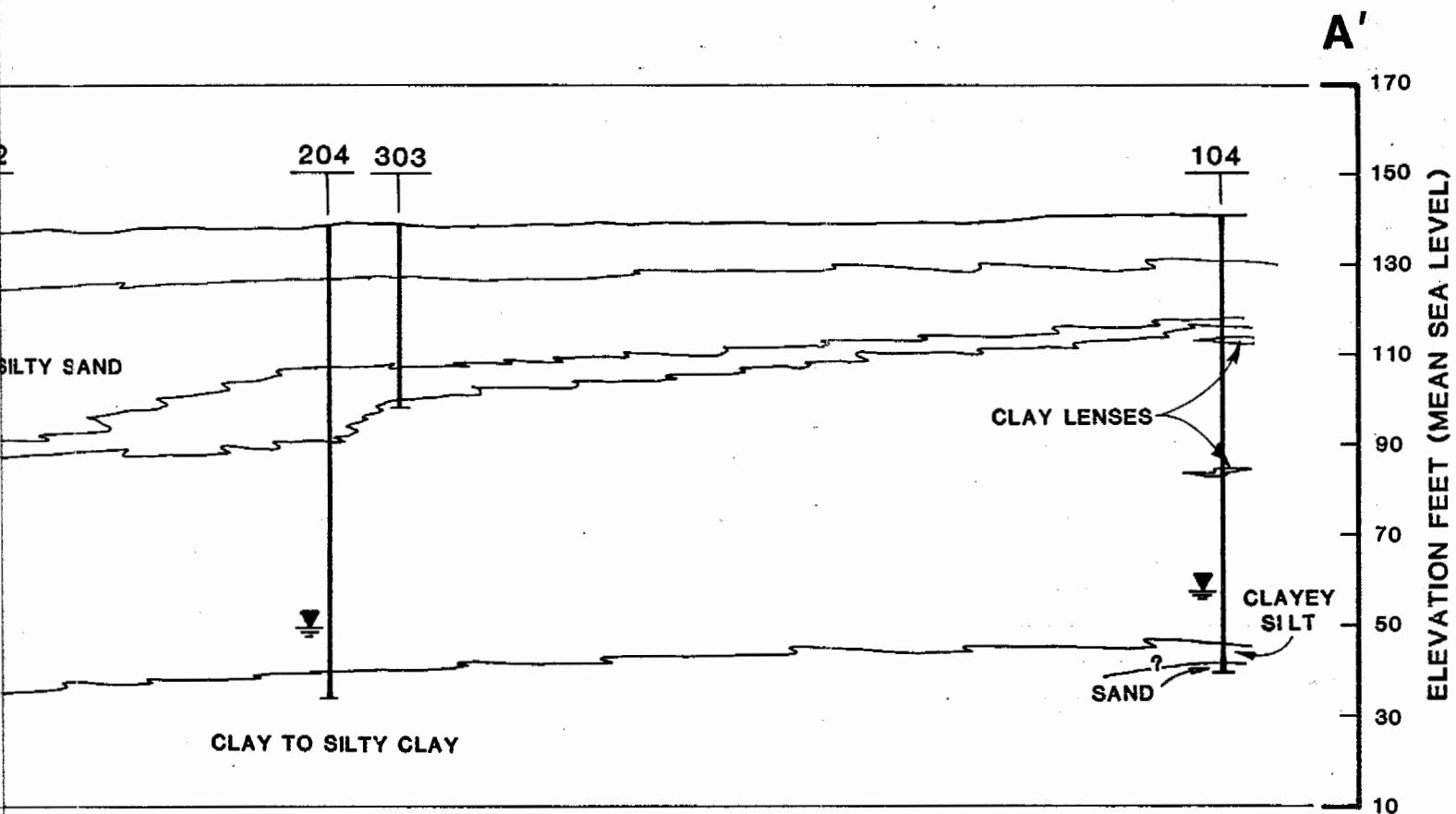


# NOTES:

- 1) THE DEPTH AND THICKNESS OF THE SUBSURFACE STRATA INDICATED ON THE SECTIONS WERE GENERALIZED FROM AND INTERPOLATED BETWEEN THE TEST BORINGS. INFORMATION ON ACTUAL SUBSURFACE CONDITIONS EXIST ONLY AT THE LOCATION OF THE TEST BORINGS AND IT IS POSSIBLE THAT SUBSURFACE CONDITIONS BETWEEN THE TEST BORINGS MAY VARY FROM THESE INDICATED.
- 2) LOCATION OF CROSS-SECTION IS SHOWN ON FIGURE 2.
- 3) SEE TEXT FOR DETAILED DESCRIPTION OF LAYERS.
- 4) WATER LEVELS WERE MEASURED ON 10/23/85.

# SECT

HORI  
0  
VER  
0



HORIZ. SCALE  
0 100 200 FT.

VERT. SCALE  
0 20 40 FT.

## SECTION A-A'

FIGURE 6

CROSS SECTION A-A'

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DRAWING  
NUMBER  
850009-B8

11/26/85  
11/26/85

3-L  
11/26/85

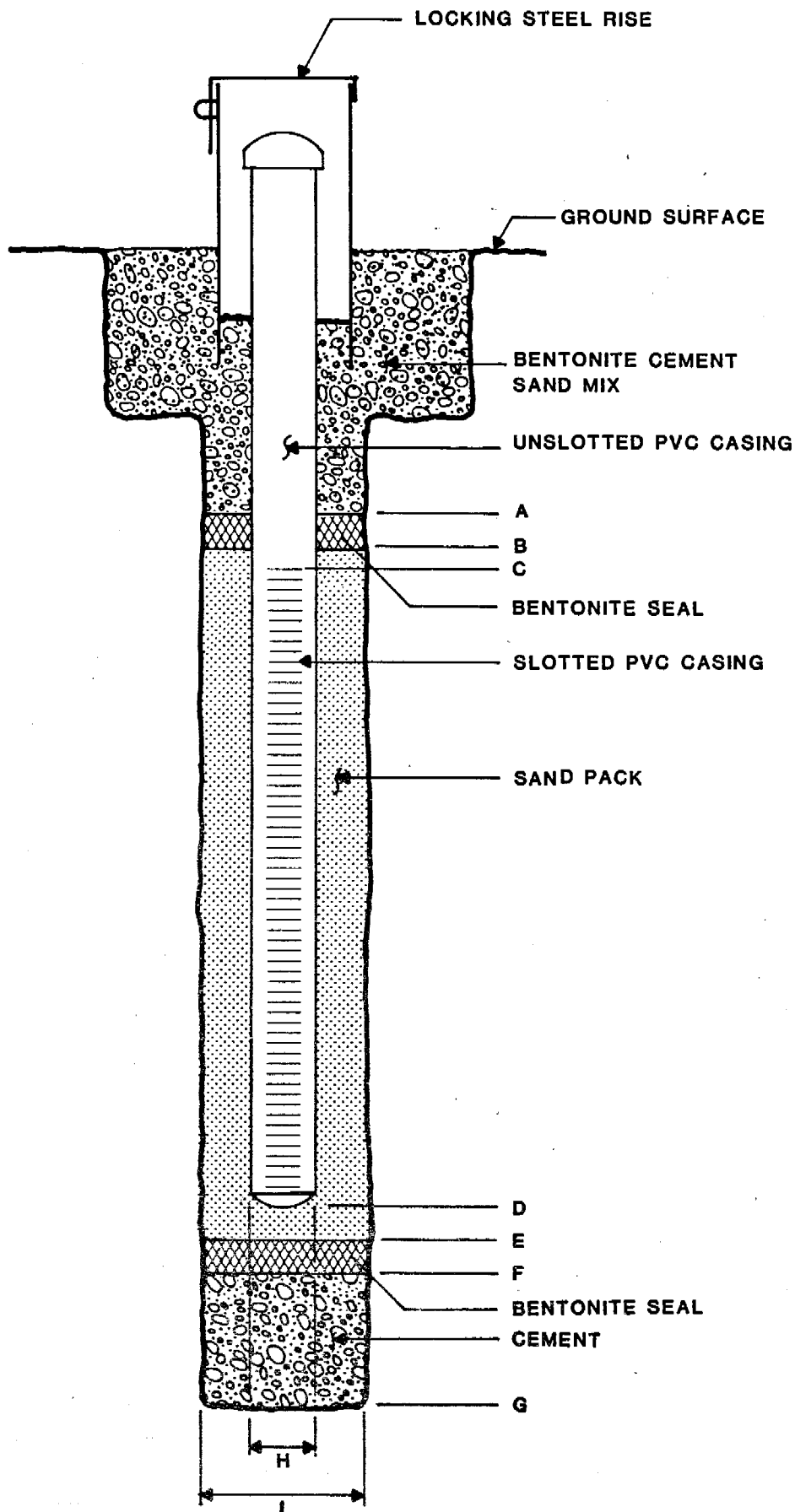
CHECKED BY  
11-2-85

APPROVED BY  
11-2-85

HDS  
11-2-85

DRAWN  
BY

REV. 1  
1-3-86



MONITOR  
WELL

10  
10  
20  
20  
20  
20  
30  
30  
30  
30  
30  
30  
30  
30  
30

LEGEND

A - D  
B - D  
C - D  
D - D  
E - D  
F - D  
G - D  
H - W  
I - B

\* As measured

65360

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"Do Not Scale This Drawing"

# CONSTRUCTION DETAILS

MONITORING WELL	A	B	C	D	E	F	G	H	I
101	67.5	69.5	70	90	90	95	-	4	12
104	72.5	74.5	76.5	96.5	97.25	99	-	4	12
201	64	66	72	102	103	-	-	4	12
202	55.5	58.0	63.0	93.0	105	-	-	4	16
203	62.7	64.7	77	107	107	-	119	4	12
204	65.5	67.5	73.3	103.3	105	-	-	4	12
205	64	65.5	69.5	99.5	103	-	-	4	12
301	6	8	9	39	40	-	-	2	8
302	6	8	9	39	40	-	-	2	8
303	6	8	9	39	40	-	-	2	8
304	6	8	9	39	40	-	-	2	8
305	4	6	9	39	40	-	-	2	8
306	4	6	9	39	40	-	-	2	8
308	6	8	9	39	40	-	-	2	8
309	6	8	9	39	40	-	-	2	8

## LEGEND

- A - Depth\* to top of bentonite seal, feet.
- B - Depth to top of sand pack, feet.
- C - Depth to top of well screen, feet.
- D - Depth to bottom of well screen, feet.
- E - Depth to top of bentonite plug, feet.
- F - Depth to top of bentonite-cement sand mix plug.
- G - Depth to bottom of boring, feet.
- H - Well diameter, inches.
- I - Borehole diameter, inches.

\*As measured from ground surface.

FIGURE 3

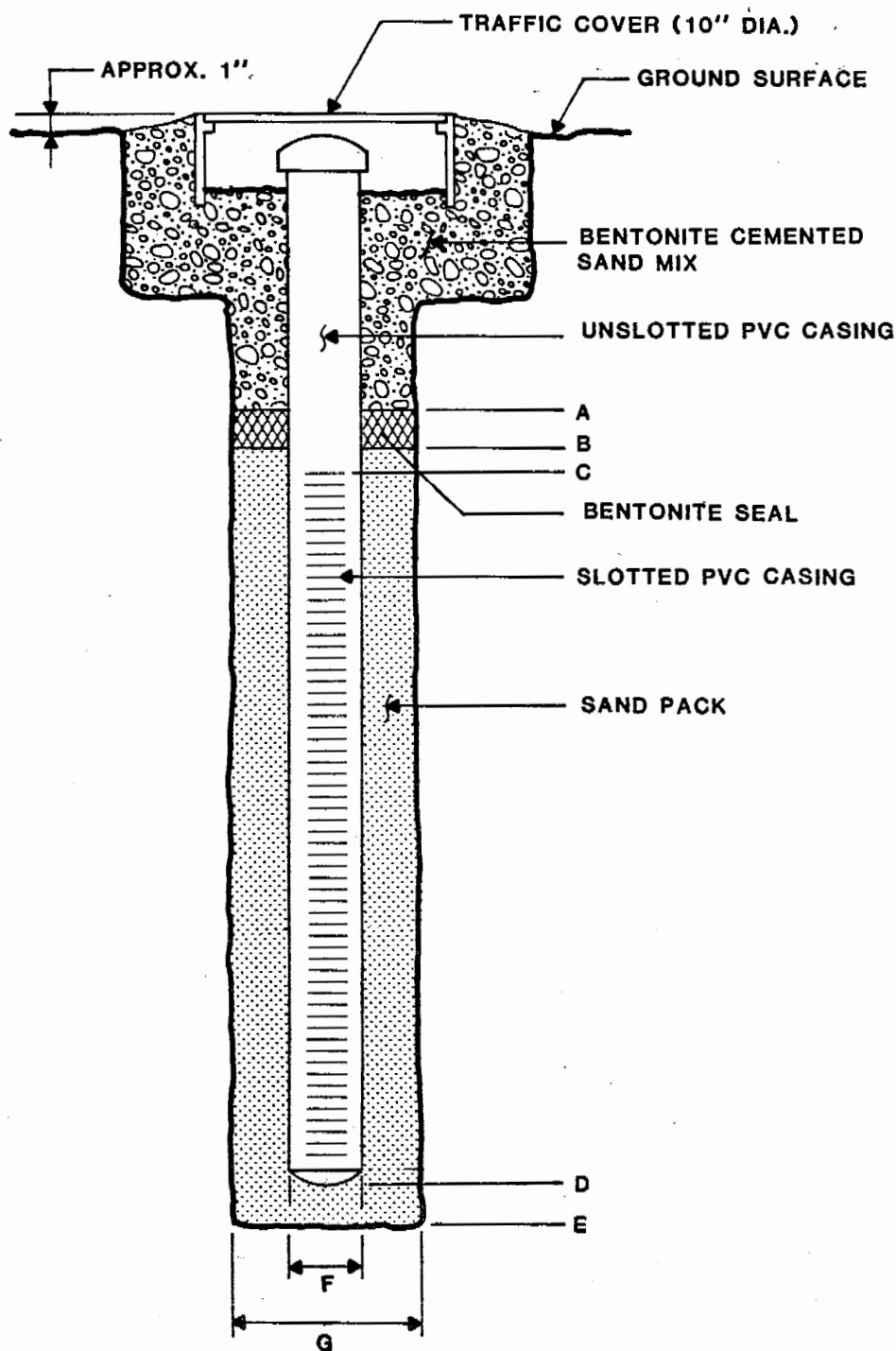
## WELL CONSTRUCTION DETAILS ABOVE GRADE SURFACE COMPLETION

PREPARED FOR

POWERINE OIL COMPANY  
SANTA FE SPRINGS, CALIFORNIA



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MONITORING  
WELL

102

103

206

307

LEGEND

A - Depth\* to

B - Depth to t

C - Depth to t

D - Depth to b

E - Depth to b

F - Well diame

G - Borehole d

\*As measured from

## CONSTRUCTION DETAILS

### MONITORING

WELL	A	B	C	D	E	F	G
102	63	65	69	99	103	4	12
103	75	77	79	99	99	4	12
206	61.5	62.5	71	101	104	4	12
307	6	8	9	39	40	2	8

### LEGEND

- A - Depth\* to top of bentonite seal, feet.
- B - Depth to top of sand pack, feet.
- C - Depth to top of well screen, feet.
- D - Depth to bottom of well screen, feet.
- E - Depth to bottom of boring, feet.
- F - Well diameter, inches.
- G - Borehole diameter, inches.

\*As measured from ground surface.

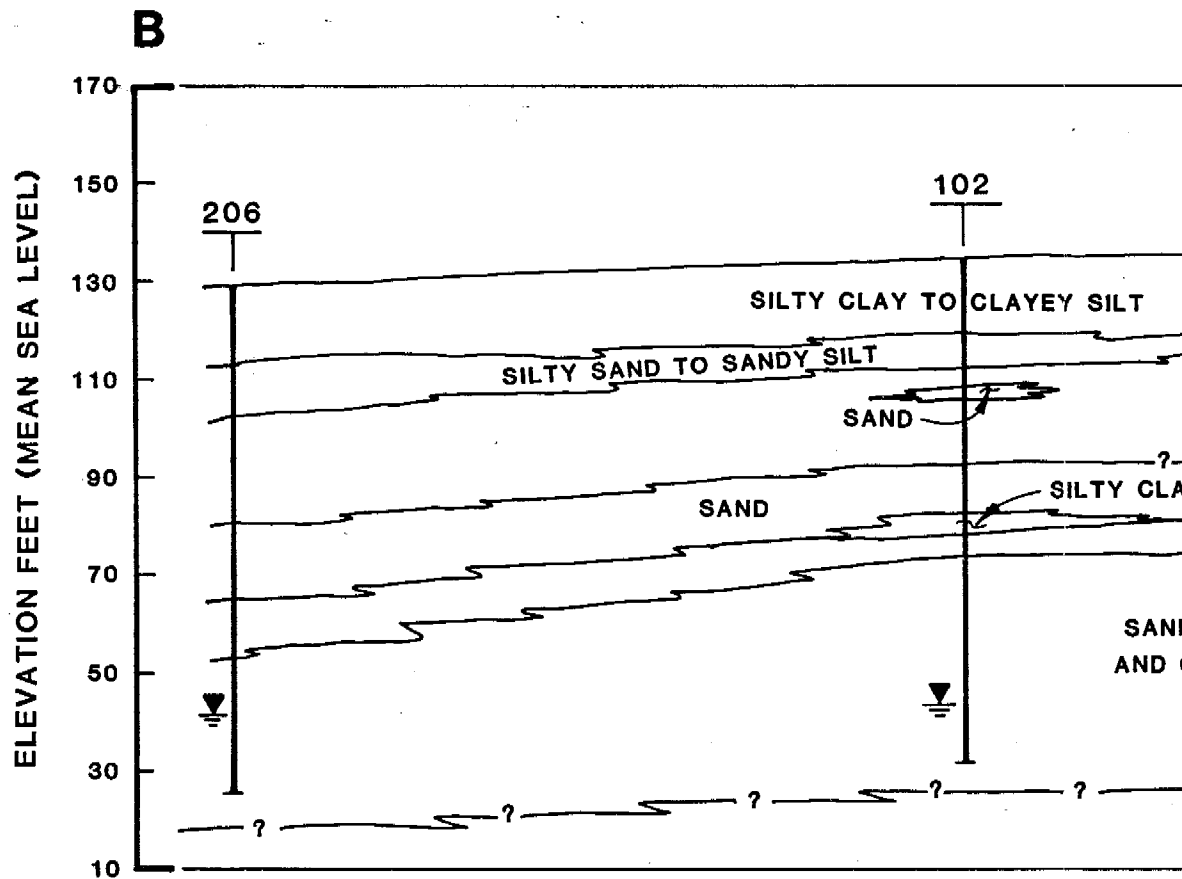
FIGURE 4

**WELL CONSTRUCTION DETAILS  
BELOW GRADE  
SURFACE COMPLETION**  
PREPARED FOR

**POWERINE OIL COMPANY  
SANTA FE SPRINGS, CALIFORNIA**



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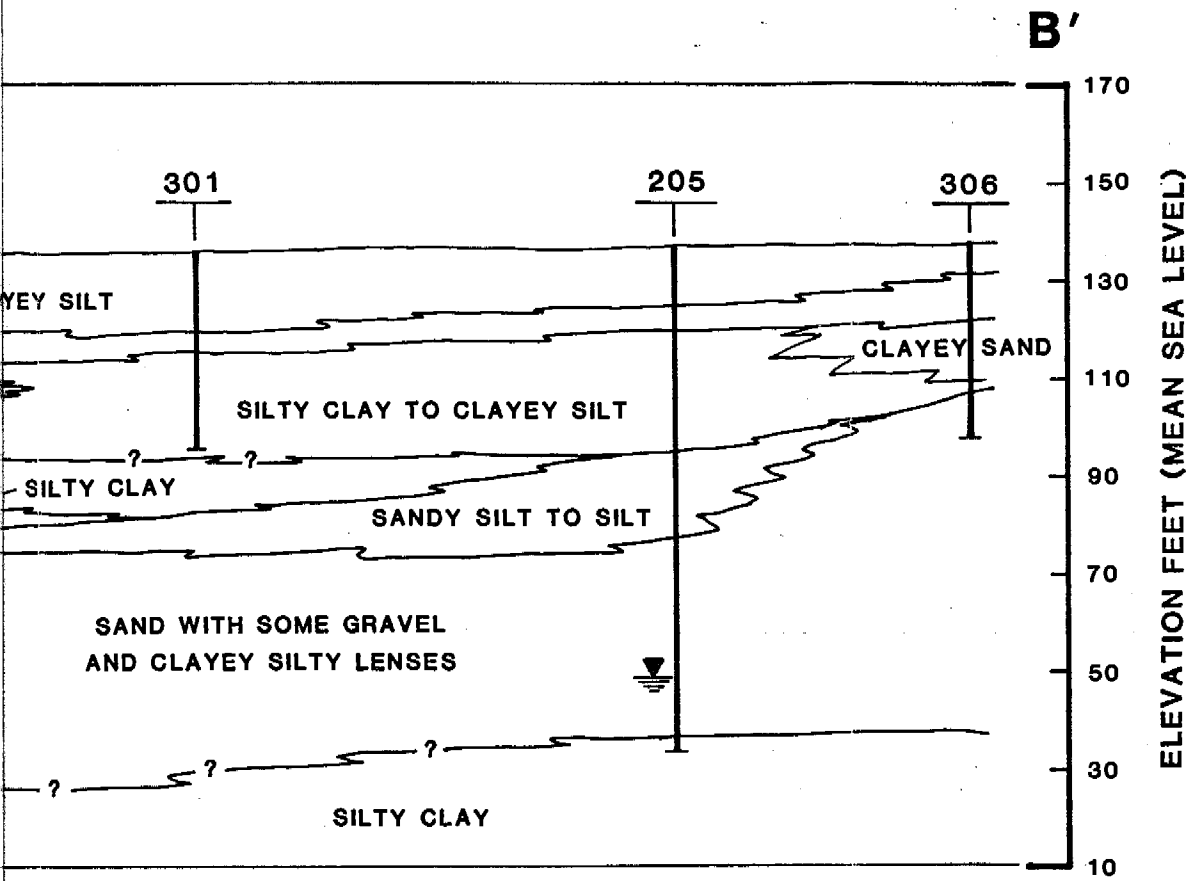
HORIZ. S  
0 100

VERT. S  
0 20

**NOTES:**

- 1) THE DEPTH AND THICKNESS OF THE SUBSURFACE STRATA INDICATED ON THE SECTIONS WERE GENERALIZED FROM AND INTERPOLATED BETWEEN THE TEST BORINGS. INFORMATION ON ACTUAL SUBSURFACE CONDITIONS EXIST ONLY AT THE LOCATION OF THE TEST BORINGS AND IT IS POSSIBLE THAT SUBSURFACE CONDITIONS BETWEEN THE TEST BORINGS MAY VARY FROM THESE INDICATED.
- 2) LOCATION OF CROSS-SECTION IS SHOWN ON FIGURE 2.
- 3) SEE TEXT FOR DETAILED DESCRIPTION OF LAYERS.
- 4) WATER LEVELS WERE MEASURED ON 10/23/85.

**SECTION**



HORIZ. SCALE

0 100 200 FT.

VERT. SCALE

0 20 40 FT.

## SECTION B-B'

FIGURE 7

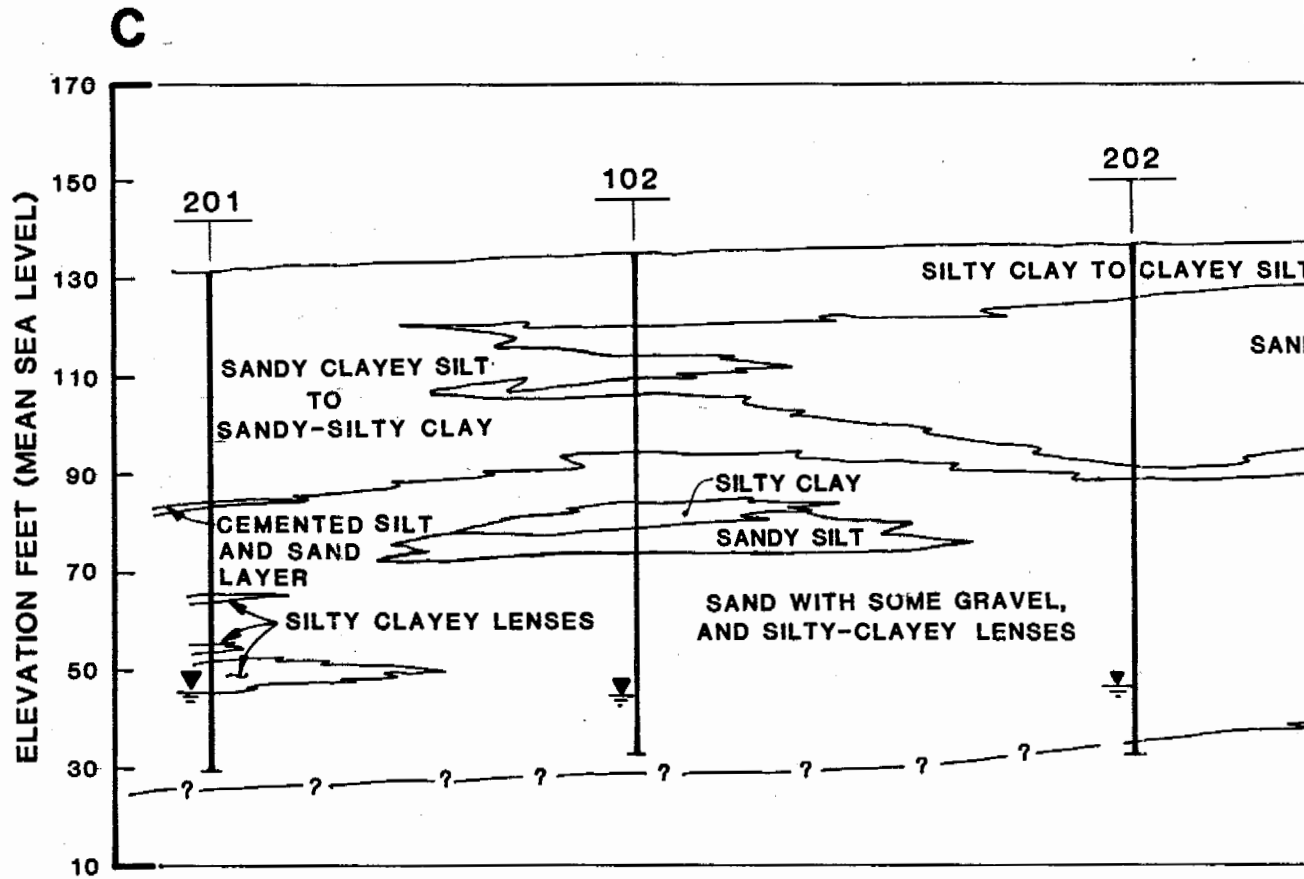
### CROSS SECTION B-B'

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SANTA FE SPRINGS, CALIFORNIA



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HORIZ. S

0 100

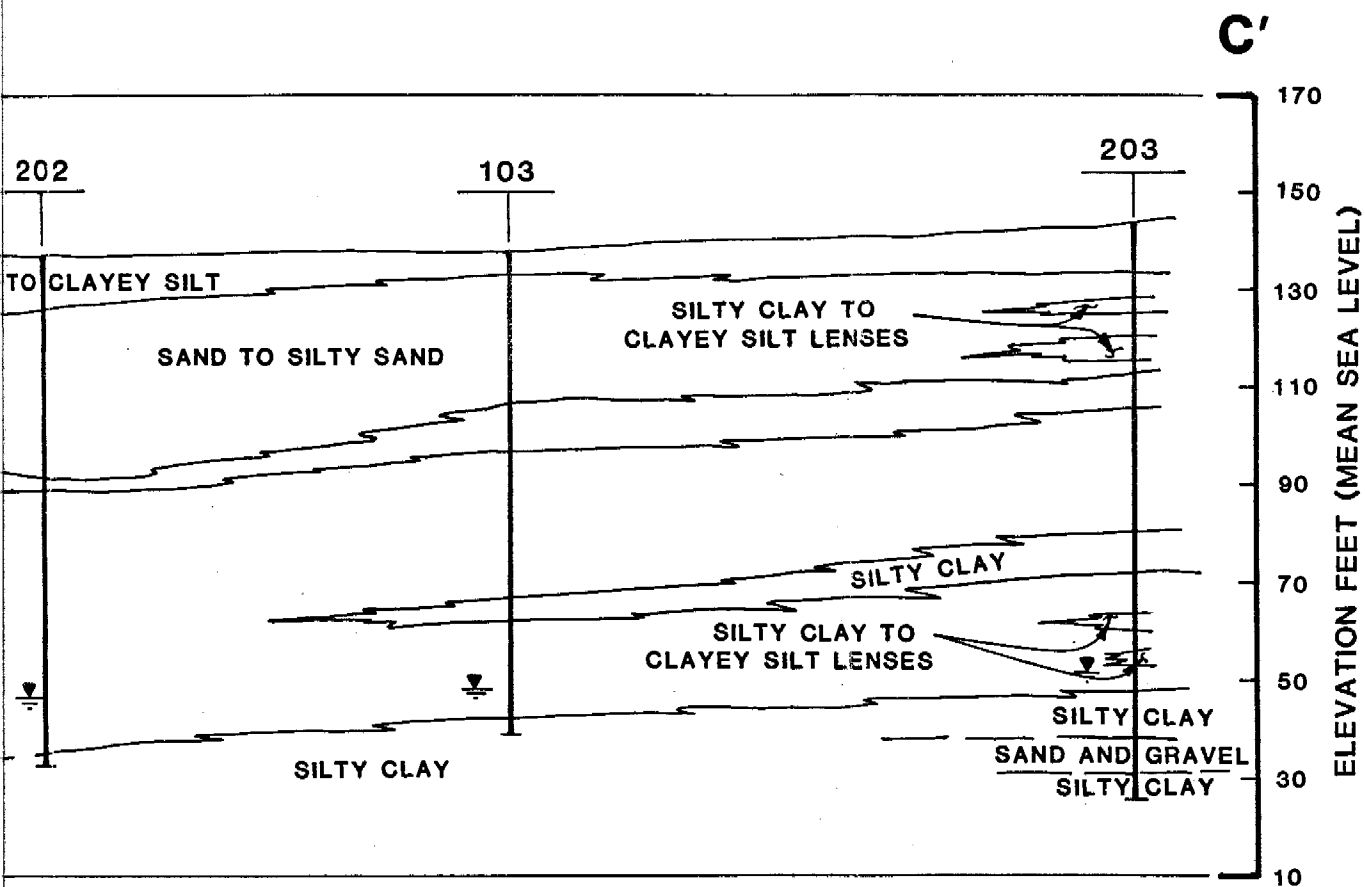
VERT. S

0 20

# **NOTES:**

- 1) THE DEPTH AND THICKNESS OF THE SUBSURFACE STRATA INDICATED ON THE SECTIONS WERE GENERALIZED FROM AND INTERPOLATED BETWEEN THE TEST BORINGS. INFORMATION ON ACTUAL SUBSURFACE CONDITIONS EXIST ONLY AT THE LOCATION OF THE TEST BORINGS AND IT IS POSSIBLE THAT SUBSURFACE CONDITIONS BETWEEN THE TEST BORINGS MAY VARY FROM THESE INDICATED.
- 2) LOCATION OF CROSS-SECTION IS SHOWN ON FIGURE 2.
- 3) SEE TEXT FOR DETAILED DESCRIPTION OF LAYERS.
- 4) WATER LEVELS WERE MEASURED ON 10/23/85.

**SECTION**



## SECTION C-C'

FIGURE 8

CROSS SECTION C-C'

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65380

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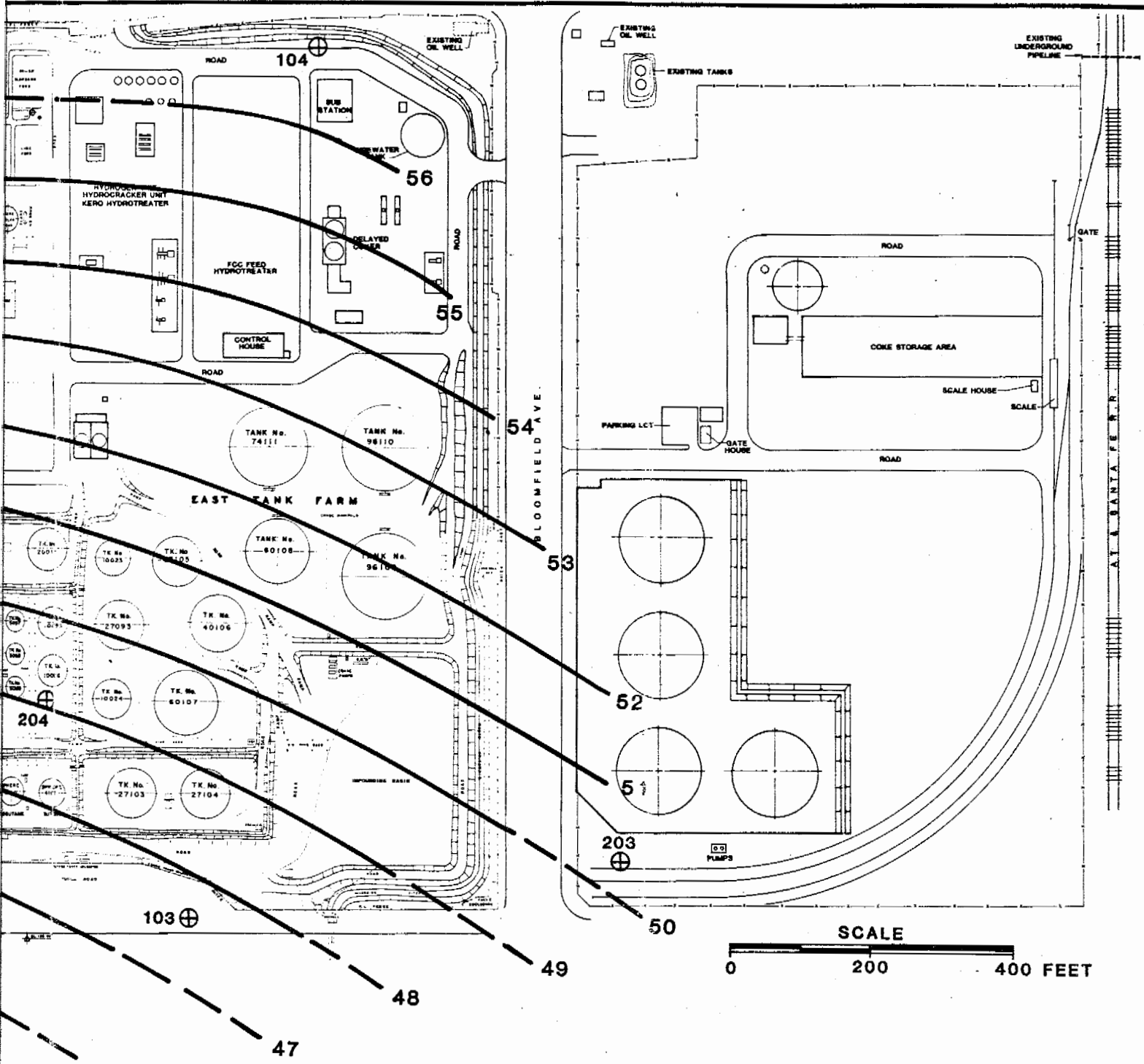


FIGURE 9

WATER TABLE  
ELEVATION CONTOURS (FT.)  
10-19-85  
PREPARED FOR

POWERINE OIL COMPANY  
SANTA FE SPRINGS, CALIFORNIA



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# FX-9 Wells

# FX-9 Wells

# FX-9 Wells

APPENDIX  
A

APPENDIX A  
BORINGS LOGS

DEPTH IN FEET	LABORATORY TEST DATA								PENETRATION RESISTANCE (BLOWS/FT.) SAMPLE		USCS PROFILE		DESCRIPTION
	TESTS REPORTED ELSEWHERE	ATTERBERG LIMITS		STRENGTH TEST DATA				MOISTURE CONTENT (%)					
		LIQUID LIMIT (%)	PLASTICITY INDEX (%)	TYPE OF TEST	NORMAL OR CONFINING PRESSURE (PSF)	DEVIATOR STRESS (PSF)	SHEAR STRENGTH (PSF)						
0													Black tar/hydrocarbon soaked soil.
													2.0'
5													
10													
15													
													16.0'
20													
													21.0'
25													
													26.0'
30													
													41.0'
35													
													51.0'
40													
													61.0'
45													
50													
55													
60													
65													

PROJECT NO. 850009-101  
CLIENT POWERLINE

IT CORPORATION

DEPTH IN FEET	LABORATORY TEST DATA								<div style="display: flex; justify-content: space-between;"> <div> <b>BORING NO. 101</b>  COORDINATES N <u>Surveved, for location</u>  E <u>see Figure 2</u> </div> <div> FIELD ENGINEER <u>R. Zinner</u>    DATE BEGAN <u>08/28/85</u>  EDITED BY <u>E. Esmaili</u>    DATE FINISHED <u>08/28/85</u>  CHECKED BY <u>R. Allen</u>    GROUND SURFACE EL. <u>133.81</u> </div> </div>		
	TESTS REPORTED ELSEWHERE	ATTERBERG LIMITS		STRENGTH TEST DATA				PENETRATION RESISTANCE (BLOWS/FT.) SAMPLE			
		LIQUID LIMIT (%)	PLASTICITY INDEX (%)	TYPE OF TEST	NORMAL OR CONFINING PRESSURE (PSF)	DEVIATOR STRESS (PSF)	SHEAR STRENGTH (PSF)				
									MOISTURE CONTENT (%)	DRY DENSITY (PCF)	
70									S-15		<div style="text-align: center;"> </div> <p>Very dense, greenish gray to gray, fine to coarse SAND, moist.</p> <p>TLV = 100 ppm at 74 feet.</p> <p>Water level was measured on 10/23/1985 Saturated from 84 feet</p> <hr/> <p>Dense, greenish gray SANDY SILT, some clay, saturated. <span style="float: right;">86.5'</span></p> <p>TLV = 60 ppm at 88 feet.</p> <p>TLV = 60 ppm at 94 feet.</p>
75									131/10"		
80									S-16	25/4"	
85									S-17	25/4"	
90									S-18	51	
95									S-19	60/9"	
TOTAL DEPTH 95 FEET											

OVA 15  
2421

DEPTH IN FEET	LABORATORY TEST DATA								BORING NO. 102		
	TESTS REPORTED ELSEWHERE	ATTERBERG LIMITS		STRENGTH TEST DATA			MOISTURE CONTENT (%)	DRY DENSITY (PCF)	PENETRATION RESISTANCE (BLOWS/FT.)	USCS PROFILE	
		LIQUID LIMIT (%)	PLASTICITY INDEX (%)	TYPE OF TEST	NORMAL OR CONFINING PRESSURE (PSF)	DEVIATOR STRESS (PSF)					SHEAR STRENGTH (PSF)
0											DESCRIPTION
											4" asphalt
											Stiff to hard, mottled dark gray and brown, SILTY CLAY to CLAYEY SILT, moist. TLV = 120 ppm at 3 feet.
5											
											Some sand from 8 feet; TLV = 300 ppm at 8 feet.
10											
											TLV = 340 ppm at 13 feet.
15											
											16.0'
											Very dense, gray and brown SILTY fine SAND, moist. TLV = 430 ppm at 18 feet.
20											
											21.25'
											Very stiff, brown CLAYEY SILT, trace of sand, moist. TLV = 100 ppm at 23 feet.
25											
											26.0'
											Gray, fine to medium SAND, moist.
30											
											28.75'
											31.25'
											Hard, gray CLAYEY SILT, some sand and gravel, moist. TLV = 130 ppm at 33 feet.
35											
											41.25'
40											
											No gravel from 38 feet. TLV = 50 ppm at 38 feet.
45											
											Very dense, gray, fine to medium SAND, moist to saturated. TLV = 620 ppm at 43 feet.
50											
											51.25'
											Hard, greenish gray SILTY CLAY, moist.
55											
											56.25'
											Very dense, greenish gray SANDY SILT, some clay, moist.
60											
											61.25'
											Medium to very dense, gray, fine to coarse SAND, moist.
65											
											Trace of clay and gravel from 68 feet.
70											



DEPTH IN FEET	LABORATORY TEST DATA								PENETRATION RESISTANCE (BLOWS/FT.) SAMPLE		USCS	PROFILE	DESCRIPTION
	TESTS REPORTED ELSEWHERE	ATTERBERG LIMITS		STRENGTH TEST DATA				MOISTURE CONTENT (%)					
		LIQUID LIMIT (%)	PLASTICITY INDEX (%)	TYPE OF TEST	NORMAL OR CONFINING PRESSURE (PSF)	DEVIATOR STRESS (PSF)	SHEAR STRENGTH (PSF)						
0													3' asphalt
5													Very stiff, brown SILTY CLAY, trace to some sand, moist. TLV = 120 ppm at 3 feet.
6.0'													
10													Medium dense to very dense, brown to gray, SILTY fine to medium SAND, moist. TLV = 180 ppm at 8 feet.
15													Medium to coarse SAND with trace to some gravel from 13 feet.
20													Fine to coarse SAND with no gravel from 18 feet.
25													TLV = 80 ppm at 23 feet.
30													TLV = 80 ppm at 28 feet.
31.0'													
35													Hard, brown SILTY to SANDY CLAY, some sand, moist. TLV = 100 ppm at 33 feet.
40													TLV = 50 ppm at 38 feet.
41.25'													
45													Very dense, brown to gray, fine to medium SAND, moist. TLV = 60 ppm at 43 feet.
50													TLV = 90 ppm at 48 feet.
55													TLV = 90 ppm at 53 feet.
60													TLV = 40 ppm at 59 feet.
65													Gravelly sand with some silt and clay from 63 feet, TLV = 30 ppm at 63 feet.
													Coarse sand with trace of silt and clay from 68 feet, TLV = 30 ppm at 68 feet.

PROJECT NO. 850009-103  
CLIENT POWERLINE

IT CORPORATION

DEPTH IN FEET	LABORATORY TEST DATA								BORING NO. 103				
	TESTS REPORTED ELSEWHERE	ATTERBERG LIMITS		STRENGTH TEST DATA			PENETRATION RESISTANCE (BLOWS/FT.) SAMPLE	USCS	PROFILE	DESCRIPTION			
		LIQUID LIMIT (%)	PLASTICITY INDEX (%)	TYPE OF TEST	NORMAL OR CONFINING PRESSURE (PSF)	DEVIATOR STRESS (PSF)					SHEAR STRENGTH (PSF)	MOISTURE CONTENT (%)	DRY DENSITY (PCF)
70											Very dense, gray, coarse SAND, trace of SILT and CLAY, moist. 71.5'		
75											Hard, gray SILTY CLAY, moist. TLV = 40 ppm at 74 feet.		
80											Very dense, gray medium SAND, moist. TLV = 40 ppm at 78 feet.		
85											Sandy gravel from 83 feet.		
90											Gravelly sand with trace of silt and clay, saturated from 88 feet, TLV = 90 ppm at 88 feet. Water level was measured on 10/23/1985		
95											Sand with some silt and clay from 93 feet.		
											Hard, gray SILTY CLAY to CLAYEY SILT, some sand, saturated. TLV = 90 ppm at 98 feet.		
											TOTAL DEPTH 99.5 FEET		

PROJECT NO. 850009-103  
 CLIENT POWERLINE

IT CORPORATION

DEPTH IN FEET	LABORATORY TEST DATA								BORING NO. 104		
	TESTS REPORTED ELSEWHERE	ATTERBERG LIMITS		STRENGTH TEST DATA				PENETRATION RESISTANCE (BLOWS/FT.) SAMPLE	USCS	PROFILE	
		LIQUID LIMIT (%)	PLASTICITY INDEX (%)	TYPE OF TEST	NORMAL OR CONFINING PRESSURE (PSF)	DEVIATOR STRESS (PSF)	SHEAR STRENGTH (PSF)				MOISTURE CONTENT (%)
0											DESCRIPTION
0											Gray gravel, (FILL)
5											Hard, orange brown to gray SILTY CLAY to CLAYEY SILT, some to trace of SAND to 5.5 feet, dry.  Moist from 5 feet.
10											Very dense, gray medium SAND, moist. 10.0'
15											Trace of gravel from 17 feet.
20											Gravelly with some clay and silt from 22 to 23.5 feet.
25											Gravelly from 27 feet to about 40 feet, coarse sand and some silt and clay at 27 feet.
30											
35											
40											
45											
50											Some gravel at 47 feet.
55											Some silt and clay at 57 feet.
60											
65											Trace of gravel at 65 feet.

PROJECT NO. 850009-104  
 CLIENT POWERLINE

IT CORPORATION

DEPTH IN FEET	LABORATORY TEST DATA								PENETRATION RESISTANCE (BLOWS/FT.) SAMPLE		USCS PROFILE		DESCRIPTION
	TESTS REPORTED ELSEWHERE	ATTERBERG LIMITS		STRENGTH TEST DATA				MOISTURE CONTENT (%)					
		LIQUID LIMIT (%)	PLASTICITY INDEX (%)	TYPE OF TEST	NORMAL OR CONFINING PRESSURE (PSF)	DEVIATOR STRESS (PSF)	SHEAR STRENGTH (PSF)						
70													Very dense, gray, medium SAND, moist, trace of brown silt and clay at 70 feet.
75													
80													Some clay and silt at 80 feet.
85													
90													Water level was measured on 10/23/1985 Saturated from 87 feet.
95													
98													Silty at 93 feet. 94.5'
98.5													
98.7													Very dense, gray CLAYEY SILT, trace to some SAND, saturated.
99													
99.5													A stiff CLAY layer from 98 to 98.7 feet. 98.7'
100													
100.5													Very dense, gray SAND, saturated.
101													
101.5													TOTAL DEPTH 99 FEET
102													
102.5													
103													
103.5													
104													
104.5													
105													
105.5													
106													
106.5													
107													
107.5													
108													
108.5													
109													
109.5													
110													
110.5													
111													
111.5													
112													
112.5													
113													
113.5													
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114.5													
115													
115.5													
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116.5													
117													
117.5													
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118.5													
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119.5													
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120.5													
121													
121.5													
122													
122.5													
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123.5													
124													
124.5													
125													
125.5													
126													
126.5													
127													
127.5													
128													
128.5													
129													
129.5													
130													
130.5													
131													
131.5													
132													
132.5													
133													
133.5													
134													
134.5													
135													

PROJECT NO. 850009-104  
 CLIENT POWERLINE

IT CORPORATION

DEPTH IN FEET	LABORATORY TEST DATA								PENETRATION RESISTANCE (BLOWS/FT.) SAMPLE		USCS PROFILE		DESCRIPTION
	TESTS REPORTED ELSEWHERE	ATTERBERG LIMITS		STRENGTH TEST DATA				MOISTURE CONTENT (%)					
		LIQUID LIMIT (%)	PLASTICITY INDEX (%)	TYPE OF TEST	NORMAL OR CONFINING PRESSURE (PSF)	DEVIATOR STRESS (PSF)	SHEAR STRENGTH (PSF)						
0											cl	Very stiff, brown and black SILTY CLAY, some gravel, hydrocarbon tar, moist.	
5											S-1 28		
10											S-2 15	No hydrocarbon tar from 8.5 feet, TLV = 110 ppm at 8 feet.	
11.25'													
15											ml S-3 37	Dense, gray to brown fine SANDY SILT, trace of clay and gravel, moist. TLV = 110 ppm at 13 feet.	
20											S-4 31	TLV = 110 ppm at 18 feet.	
26.25'													
30											cl	Hard, brown SILTY CLAY, some sand and gravel, moist.	
35											S-5 33	TLV = 80 ppm at 33 feet.	
40												Sand cuttings from hole at about 40 feet.	
48.25'											S-6 46	TLV = 100 ppm at 48 feet.	
48.5'												A thin layer of cemented SAND and SILT. Dense to medium dense, gray medium SAND, moist.	
50											sp/ sc		
65													
68											S-7 30	Sandy clay lens from 68 feet to 68.5 feet Silty fine SAND from 68.5 feet. TLV=200 ppm at 68 feet.	

PROJECT NO. 850009-201

CLIENT POWERLINE

IT CORPORATION

DEPTH IN FEET	LABORATORY TEST DATA								PENETRATION RESISTANCE (BLOWS/FT.) SAMPLE		USCS PROFILE		DESCRIPTION
	TESTS REPORTED ELSEWHERE	ATTERBERG LIMITS		STRENGTH TEST DATA			MOISTURE CONTENT (%)	DRY DENSITY (PCF)					
		LIQUID LIMIT (%)	PLASTICITY INDEX (%)	TYPE OF TEST	NORMAL OR CONFINING PRESSURE (PSF)	DEVIATOR STRESS (PSF)			SHEAR STRENGTH (PSF)				
70											sp/		Dense to medium dense, gray SILTY fine SAND, moist.
75											sc		
80											S-8 42		Silty clay lens from 78 to 78.5 feet, medium SAND with some gravel from 78.5 feet. TLV = 70 ppm at 78 feet.
81.25'													
85											S-9 60	cl /m	Very stiff to hard, gray and brown SILTY CLAY to CLAYEY SILT, some medium SAND, moist. TLV = 80 ppm at 83 feet. Water level was measured on 10/23/1985
87.25'													
90											S-10 30	sp	Medium dense to very dense, gray medium SAND, saturated. TLV = 140 ppm at 88 feet.
95											S-11 64		Medium to coarse SAND and trace of gravel from 95 feet.
98											40/6"		TLV = 80 ppm at 98 feet.
100													
103													TOTAL DEPTH 103 FEET.
105													
110													
115													
120													
125													
130													
135													

# BORING NO. 201

COORDINATES N Surveyed, for location  
E see Figure 2

FIELD ENGINEER R. Zinner DATE BEGAN 09/09/85  
EDITED BY E. Esmaili DATE FINISHED 09/10/85  
CHECKED BY R. Allen GROUND SURFACE EL. 131.96

DEPTH IN FEET	LABORATORY TEST DATA								PENETRATION RESISTANCE (BLOWS/FT.) SAMPLE		USCS	PROFILE	DESCRIPTION
	ATTERBERG LIMITS		STRENGTH TEST DATA				MOISTURE CONTENT (%)	DRY DENSITY (PCF)					
	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	TYPE OF TEST	NORMAL OR CONFINING PRESSURE (PSF)	DEVIATOR STRESS (PSF)	SHEAR STRENGTH (PSF)							
	TESTS REPORTED ELSEWHERE												
0													Very stiff to hard, brown to gray SILTY CLAY, moist.
5													TLV = 140 ppm at 3.5 feet.
10													TLV = 110 ppm at 8.5 feet.
15													Dense, gray SILTY SAND, top 1 foot is partially cemented, moist. TLV = 100 ppm at 13.5 feet.
20													Gravelly from about 17 feet.
25													
30													TLV=100 ppm at 28.5 feet
35													
40													TLV = 500 ppm on cuttings from about 43 feet.
45													Very stiff, brown SANDY CLAY, some gravel, moist.
50													TLV = 320 ppm at 48.5 feet.
55													Dense, gray fine SAND, moist.
60													
65													Some gravel from 68.5 feet, TLV=80 ppm at 68.5 feet.

# BORING NO. 202

COORDINATES N Surveyed, for location  
E see Figure 2

FIELD ENGINEER J. Masoudi DATE BEGAN 9/20/85  
EDITED BY E.Esmaili DATE FINISHED 9/23/85  
CHECKED BY R. Allen GROUND SURFACE EL. 136.40

PROJECT NO. 850009-202  
CLIENT POWER LINE

IT CORPORATION

DEPTH IN FEET	LABORATORY TEST DATA										PENETRATION RESISTANCE (BLOWS/FT.) SAMPLE		USCS PROFILE		DESCRIPTION	
	TESTS REPORTED ELSEWHERE		ATTERBERG LIMITS		STRENGTH TEST DATA				MOISTURE CONTENT (%)	DRY DENSITY (PCF)						
	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	TYPE OF TEST	NORMAL OR CONFINING PRESSURE (PSF)	DEVIATOR STRESS (PSF)	SHEAR STRENGTH (PSF)										
70																
75																
80																
85																
90																
95																
100																
102.0'																
105																
110																
115																
120																
125																
130																
135																

# BORING NO. 202

COORDINATES N Surveyed for location  
E see Figure 2

FIELD ENGINEER R. Zinner DATE BEGAN 9/20/85  
EDITED BY E. Esmaili DATE FINISHED 9/23/85  
CHECKED BY R. Allen GROUND SURFACE EL. 136.40

## DESCRIPTION

Dense, gray fine SAND, some gravel, moist.

TLV = 800 ppm at 78.5 feet.

Water level was measured on 10/23/1985

Some gravel and silt from 88.5 feet.

TLV = 5400 ppm at 89 feet. Yellowish discoloration of sand, 1/2 inch in thickness, at 88.5'.

102.0'

Yellowish gray SILTY CLAY.

TOTAL DEPTH 105 FEET

PROJECT NO. 850009-202  
CLIENT POWERLINE

IT CORPORATION

DEPTH IN FEET	LABORATORY TEST DATA								PENETRATION RESISTANCE (BLOWS/FT.) SAMPLE		USCS PROFILE		DESCRIPTION
	TESTS REPORTED ELSEWHERE	ATTERBERG LIMITS		STRENGTH TEST DATA				MOISTURE CONTENT (%)					
		LIQUID LIMIT (%)	PLASTICITY INDEX (%)	TYPE OF TEST	NORMAL OR CONFINING PRESSURE (PSF)	DEVIATOR STRESS (PSF)	SHEAR STRENGTH (PSF)						
0												cl	Hard to very stiff, brown SILTY CLAY, trace of sand, moist. TLV = 80 ppm at 3 feet.
5												S-1 47	
10												S-2 25	No sand from 8 feet.
15												sp	Dense, gray, medium to coarse SAND, trace of gravel, moist. TLV = 60 ppm at 13 feet.
20												S-3 31	
25												cl	Medium stiff, gray SILTY CLAY, moist.
30												S-4 36/11"	Dense, gray SILTY SAND, cemented, tube-like pores, moist.
35												sm	
40												S-5 31	Dense, gray CLAYEY SILT, moist.
45												ml	
50												S-6 33	Some sand and TLV = 110 ppm at 28 feet.
55												sp	Dense, gray medium SAND, moist.
60												S-7 26	Very stiff, gray to greenish SILTY CLAY, trace to some sand and gravel, moist. TLV = 80 ppm at 33 feet.
65												cl	
70												S-8 34	Dense to very dense, gray, medium to coarse SAND, moist.
75												sp	Trace of gravel from 43 feet. TLV = 100 ppm at 43 feet.
80												S-9 31	
85												S-10 44	Gravelly from 48 feet. TLV = 120 ppm at 48 feet.
90												S-11 67	Medium sand and some fine gravel from 53 feet. TLV = 150 ppm at 53 feet.
95												S-12 30	Fine to medium sand, no gravel from 58 feet. TLV = 80 ppm at 53 feet.
100												S-13 36	TLV = 110 ppm at 63 feet. Hard, brown to greenish gray CLAY, some gray sand, moist.
105												cl	
110												S-14	TLV = 140 ppm at 68 feet.

# BORING NO. 203

COORDINATES N Surveyed, for location  
E see Figure 2

FIELD ENGINEER R. Zinner DATE BEGAN 9/11/85  
EDITED BY E. Esmaili DATE FINISHED 9/13/85  
CHECKED BY R. Allen GROUND SURFACE EL. 142.95

PROJECT NO. 850009-203  
CLIENT POWER LINE

IT CORPORATION

DEPTH IN FEET	LABORATORY TEST DATA								PENETRATION RESISTANCE (BLOWS/FT.) SAMPLE		USCS PROFILE		DESCRIPTION	
	TESTS REPORTED ELSEWHERE	ATTERBERG LIMITS		STRENGTH TEST DATA				MOISTURE CONTENT (%)						
		LIQUID LIMIT (%)	PLASTICITY INDEX (%)	TYPE OF TEST	NORMAL OR CONFINING PRESSURE (PSF)	DEVIATOR STRESS (PSF)	SHEAR STRENGTH (PSF)							
70												cl	Hard, brown to greenish gray CLAY, some gray SAND, moist. TLV = 150 ppm at 73 feet. 73.5'	
75												sp	Dense to very dense, gray fine SAND, moist.	
80												cl	Medium SAND with some SILT from 78 feet, TLV = 590 ppm at 78 feet. 81.75'	
85												sp	Hard, gray SILTY CLAY, moist. TLV = 400 ppm at 83 feet. 83.75'	
90												ml	Very dense, gray GRAVELLY SAND, trace of clay, moist. TLV = 120 ppm at 88 feet. 88.75'	
95												sw	Hard, greenish gray CLAYEY SILT, moist. Water level was measured on 10/23/1985 Dense, greenish gray, fine SILTY SAND, saturated. TLV = 70 ppm at 93 feet. 96.25'	
100												cl	Hard to very stiff, greenish gray SILTY CLAY, some SAND, saturated. TLV = 120 ppm at 99 feet. 106.25'	
105												sw	A lens of gravelly and sandy clay and fat clay from 103 to 103.33 feet. 113.0'	
110												ml/cl	Very dense, gray, fine to coarse SAND, trace of gravel, saturated. Greenish gray SILT, some fine sand, trace of clay, saturated. Sandy from 116 feet. TOTAL DEPTH 119 FEET	
115														

DEPTH IN FEET	LABORATORY TEST DATA								PENETRATION RESISTANCE (BLOWS/FT.) SAMPLE		USCS PROFILE		DESCRIPTION	
	TESTS REPORTED ELSEWHERE	ATTERBERG LIMITS		STRENGTH TEST DATA				MOISTURE CONTENT (%)						DRY DENSITY (PCF)
		LIQUID LIMIT (%)	PLASTICITY INDEX (%)	TYPE OF TEST	NORMAL OR CONFINING PRESSURE (PSF)	DEVIATOR STRESS (PSF)	SHEAR STRENGTH (PSF)							
0														
5														
10														
15														
20														
25														
30														
35														
40														
45														
50														
55														
60														
65														

# BORING NO. 204

COORDINATES N Surveyed, for location  
E see Figure 2

FIELD ENGINEER J. Masoudi DATE BEGAN 9/19/85  
EDITED BY E. Esmaili DATE FINISHED 9/19/85  
CHECKED BY R. Allen GROUND SURFACE EL. 138.56

## DESCRIPTION

Stiff to hard, dark brown SILTY CLAY, moist.

TLV = 470 ppm at 3.5 feet.

TLV = 140 ppm at 8.5 feet.

11.75'

Medium dense, gray SILTY fine SAND, moist.

TLV = 180 ppm at 13.5 feet.

No silt from 18.5 feet.

31.0'

Very stiff, brown CLAY, trace to some sand and gravel, moist.

TLV = 100 ppm at 33.5 feet.






48.5'

Dense, gray SAND, some silt, moist.

TLV = 20 ppm at 68.5 feet.





DEPTH IN FEET	LABORATORY TEST DATA								PENETRATION RESISTANCE (BLOWS/FT.) SAMPLE		USCS	PROFILE	DESCRIPTION
	TESTS REPORTED ELSEWHERE	ATTERBERG LIMITS		STRENGTH TEST DATA				MOISTURE CONTENT (%)					
		LIQUID LIMIT (%)	PLASTICITY INDEX (%)	TYPE OF TEST	NORMAL OR CONFINING PRESSURE (PSF)	DEVIATOR STRESS (PSF)	SHEAR STRENGTH (PSF)						
70											sp	<p>Very dense, gray, GRAVELLY SAND, moist.</p>          <p>Water level was measured on 10/23/1985</p>   <p>Trace of gravel and saturated from 83 feet. TLV = 150 ppm at 83 feet.</p>          <p>Gravelly with some SILT and CLAY from 93 feet.</p>          <p>101.0'</p>	
75											sc		
80													
85											S-8  50/10"		
90											46 		
95											S-9  63/11"		
100											S-10  24		
											S-11 		
											cl		
<p>TOTAL DEPTH 104.5 FEET</p> <p>* NC= Not counted</p>													

PROJECT NO. 850009-205  
 CLIENT POWERLINE

IT CORPORATION

DEPTH IN FEET	LABORATORY TEST DATA								PENETRATION RESISTANCE (BLOWS/FT.) SAMPLE		USCS		PROFILE	DESCRIPTION
	ATTERBERG LIMITS		STRENGTH TEST DATA				MOISTURE CONTENT (%)	DRY DENSITY (PCF)						
	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	TYPE OF TEST	NORMAL OR CONFINING PRESSURE (PSF)	DEVIATOR STRESS (PSF)	SHEAR STRENGTH (PSF)								
	TESTS REPORTED ELSEWHERE													
0													4" Asphalt	2.0'
3										S-1	cl		Hard, brown SILTY CLAY to CLAYEY SILT, some sand, moist. TLV = 180 ppm at 3 feet.	
8										51/11"	/ml			
8										S-2			TLV = 180 ppm at 8 feet.	
10										47/10"				
13										S-3			TLV = 130 ppm at 13 feet.	
15										50				
16.25										S-4	ml		Very dense, gray to brown SILT, some sand, moist. TLV = 140 ppm at 18 feet.	16.25'
20										50/10"				
26.5														26.5'
30											cl		Hard, brown SILTY CLAY, moist.	
33										S-5			TLV = 40 ppm at 33 feet.	
35										33				
48										S-6			TLV = 120 ppm at 48 feet.	
48.75										33	sp		Dense, greenish gray fine SAND, moist.	48.75'
60													Some gravel from about 60 to 65 feet.	
65														65.0'
65										S-7	ml		Very dense, gray SILT, some sand and clay, moist. TLV = 40 ppm at 68 feet.	
68										48/8"				

PROJECT NO. 850009-206  
 CLIENT POWERLINE

IT CORPORATION

DEPTH IN FEET	LABORATORY TEST DATA								BORING NO. 206		COORDINATES N <u>Surveved, for</u> location E <u>see Figure 2</u>		FIELD ENGINEER <u>R. Zinner</u> DATE BEGAN <u>9/17/85</u> EDITED BY <u>E. Esmaili</u> DATE FINISHED <u>9/18/85</u> CHECKED BY <u>R. Allen</u> GROUND SURFACE EL. <u>129.96</u>	
	TESTS REPORTED ELSEWHERE		ATTERBERG LIMITS		STRENGTH TEST DATA									
		LIQUID LIMIT (%)	PLASTICITY INDEX (%)	TYPE OF TEST	NORMAL OR CONFINING PRESSURE (PSF)	DEVIATOR STRESS (PSF)	SHEAR STRENGTH (PSF)	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	PENETRATION RESISTANCE (BLOWS/FT.)	USCS	PROFILE	DESCRIPTION	
70										ml		Very dense, gray SILT, some sand and clay, moist.		
75												76.0'		
80										sp		Very dense, gray, fine to medium SAND, some gravel, saturated below 84 feet.		
85									S-8 50/5"			TLV = 210 ppm at 83 feet. Water level was measured on 10/23/1985		
90									S-9 55			TLV = 60 ppm at 88 feet.		
95														
100									S-10 21			TLV = 90 ppm at 98 feet.		
												TOTAL DEPTH 104 FEET		

PROJECT NO. 850009-301  
CLIENT POWERLINE



DEPTH IN FEET	LABORATORY TEST DATA								PENETRATION RESISTANCE (BLOWS/FT.) SAMPLE		USCS	PROFILE	DESCRIPTION
	TESTS REPORTED ELSEWHERE	ATTERBERG LIMITS		STRENGTH TEST DATA				MOISTURE CONTENT (%)					
		LIQUID LIMIT (%)	PLASTICITY INDEX (%)	TYPE OF TEST	NORMAL OR CONFINING PRESSURE (PSF)	DEVIATOR STRESS (PSF)	SHEAR STRENGTH (PSF)						
0													Hard, dark brown CLAY to SILTY CLAY, gravelly near the surface, moist. TLV = 60 ppm at 3.5 feet.
5													TLV = 80 ppm at 8.5 feet.
10													Very dense, gray SAND, moist. TLV = 150 ppm at 14 feet.
15													Silty from 18.5 feet, TLV = 200 ppm at 18.5 feet.
20													Gravelly from 23.5 feet, TLV = 140 ppm at 23.5 feet.
25													Silty with no gravel, from 28.5 feet, TLV = 200 ppm at 28.5 feet.
30													
35													Hard, gray to brown SILTY CLAY, some sand, moist. TLV = 120 ppm at 33.5 feet.
40													Very dense, gray SILTY SAND, moist. TLV = 120 ppm.
TOTAL DEPTH 40 FEET													
No free underground water encountered at time of drilling.													

PROJECT NO. 850009-303  
CLIENT POWER LINE

IT CORPORATION

DEPTH IN FEET	LABORATORY TEST DATA								BORING NO. 304				
	TESTS REPORTED ELSEWHERE	ATTERBERG LIMITS		STRENGTH TEST DATA				PENETRATION RESISTANCE (BLOWS/FT.)	SAMPLE NO.	USCS	PROFILE		
		LIQUID LIMIT (%)	PLASTICITY INDEX (%)	TYPE OF TEST	NORMAL OR CONFINING PRESSURE (PSF)	DEVIATOR STRESS (PSF)	SHEAR STRENGTH (PSF)						
												MOISTURE CONTENT (%)	DRY DENSITY (PCF)
0													DESCRIPTION
0 - 6.25'									S-1 32	cl		Hard, brown SILTY CLAY, trace of sand, moist. TLV = 50 ppm at 3.0 feet.	
6.25' - 26.25'									S-2 26	sp/sc		Medium dense to very dense, brown to gray medium SAND, some silt and clay, moist. TLV = 70 ppm at 8.0 feet.	
26.25' - 31.25'									S-3 46			TLV = 80 ppm at 13 feet.	
31.25' - 36.25'									S-4 66			TLV = 110 ppm at 18 feet.	
36.25' - 40.00'									S-5 56			Medium to coarse SAND, some gravel, clay, and silt from 23 feet. TLV = 100 ppm at 23 feet.	
40.00' - 41.25'									S-6 40	ml		Dense, brown and gray SILT, some sand, moist. TLV = 100 ppm at 28 feet.	
41.25' - 42.50'									S-7 60/11"	ml		Hard, gray CLAYEY SILT, some sand, moist.	
42.50' - 44.00'									S-8 67/10"	sp		Very dense, gray, fine to medium SAND, trace of gravel, moist. TLV = 80 ppm at 38 feet.	
TOTAL DEPTH 40 FEET													
No free underground water encountered at time of drilling.													

DEPTH IN FEET	LABORATORY TEST DATA								BORING NO. 305			
	TESTS REPORTED ELSEWHERE	ATTERBERG LIMITS		STRENGTH TEST DATA			MOISTURE CONTENT (%)	DRY DENSITY (PCF)	PENETRATION RESISTANCE (BLOWS/FT.) SAMPLE	USCS PROFILE	DESCRIPTION	
		LIQUID LIMIT (%)	PLASTICITY INDEX (%)	TYPE OF TEST	NORMAL OR CONFINING PRESSURE (PSF)	DEVIATOR STRESS (PSF)						SHEAR STRENGTH (PSF)
0												
5												
10												
15												
20												
25												
30												
35												
40												

COORDINATES		DATE	
N	Not surveyed, for approximate	BEGAN	09/5/85
E	location see Figure 2	FINISHED	09/5/85
FIELD ENGINEER R. Zinner		CHECKED BY R. Allen	
EDITED BY E. Esmaili		GROUND SURFACE EL. Not measured	

DESCRIPTION	
Hard, brown to greenish gray, SILTY CLAY to CLAYEY SILT, moist. TLV = 110 ppm at 3.0 feet.	
Some sand from 8 feet.	
Very dense, gray medium SAND, trace of gravel, moist. TLV = 50 ppm at 12 feet.	
TLV = 110 ppm at 18 feet.	
TLV = 120 ppm at 23 feet.	
Dense, brown and gray SILT, some clay, moist. TLV = 90 ppm at 28 feet.	
TLV = 310 ppm at 33 feet.	
Very dense, gray SANDY GRAVEL, moist.	
Very dense, brown medium SAND, trace of gravel, moist. TLV = 210 ppm at 38 feet.	
TOTAL DEPTH 40 FEET	
*NC = Not Counted	
No free underground water encountered at time of drilling.	

DEPTH IN FEET	LABORATORY TEST DATA								BORING NO. 306					
	TESTS REPORTED ELSEWHERE	ATTERBERG LIMITS		STRENGTH TEST DATA			MOISTURE CONTENT (%)	DRY DENSITY (PCF)	PENETRATION RESISTANCE (BLOWS/FT.)	USCS	PROFILE	DESCRIPTION		
		LIQUID LIMIT (%)	PLASTICITY INDEX (%)	TYPE OF TEST	NORMAL OR CONFINING PRESSURE (PSF)	DEVIATOR STRESS (PSF)							SHEAR STRENGTH (PSF)	
0													cl	Very stiff, brown SILTY CLAY, trace of sand, moist. TLV = 60 ppm at 3.0 feet.
5														6.25'
10													ml/cl	Dense to very dense, brown SANDY to CLAYEY SILT, moist. TLV = 80 ppm at 8 feet.
15														16.0'
20													sc/sm	Very dense, gray and brown CLAYEY SAND, some silt, moist. TLV = 80 ppm at 18 feet.
25														26.0'
30													cl	Hard, brown CLAY, trace to some sand, moist. TLV = 80 ppm at 28 feet.
35													sp	Medium to very dense, greenish gray medium SAND, moist.
40														
TOTAL DEPTH 40 FEET														
No free underground water encountered at time of drilling.														

PROJECT NO. 850009-306  
 CLIENT POWER LINE

IT CORPORATION

# BORING NO. 307

COORDINATES N Not surveyed, for approximate  
E location see Figure 2

FIELD ENGINEER R. Zinner DATE BEGAN 09/16/85  
EDITED BY E. Esmaili DATE FINISHED 09/16/85  
CHECKED BY R. Allen GROUND SURFACE EL. Not measured

DEPTH IN FEET	LABORATORY TEST DATA								BORING NO. 307			
	TESTS REPORTED ELSEWHERE	ATTERBERG LIMITS		STRENGTH TEST DATA				PENETRATION RESISTANCE (BLOWS/FT.) SAMPLE	USCS	PROFILE	DESCRIPTION	
		LIQUID LIMIT (%)	PLASTICITY INDEX (%)	TYPE OF TEST	NORMAL OR CONFINING PRESSURE (PSF)	DEVIATOR STRESS (PSF)	SHEAR STRENGTH (PSF)					MOISTURE CONTENT (%)
0												
5												
10												
15												
20												
25												
30												
35												
40												
45												
50												
55												
60												
65												

COORDINATES		N	Not surveyed, for approximate	
		E	location see Figure 2	
FIELD ENGINEER	R. Zinner	DATE BEGAN	09/16/85	
EDITED BY	E. Esmaili	DATE FINISHED	09/16/85	
CHECKED BY	R. Allen	GROUND SURFACE EL.	Not measured	

S-1	cl	Very stiff to hard, brown SILTY CLAY to CLAYEY SILT, trace to some sand, moist.
39	/ml	
S-2		
16		
S-3	ml	Very dense, gray to brown GRAVELLY SILT, moist.
62		
S-4		No gravel from 18 feet.
57		
S-5		Gravelly from 23 feet.
42/5"		
S-6	sm	Very dense, gray SILTY fine SAND, trace of gravel.
52		
S-7	sc	Dense to very dense, greenish gray CLAYEY SAND and SILT, moist. A thin layer of cemented SILT and SAND exists at 33 feet.
36		
S-8		
60		
TOTAL DEPTH 40 FEET		
No free underground water encountered at time of drilling.		

PROJECT NO. 850009-307  
CLIENT POWER LINE

IT CORPORATION

DEPTH IN FEET	LABORATORY TEST DATA										PENETRATION RESISTANCE (BLOWS/FT.) SAMPLE		USCS	PROFILE	DESCRIPTION
	TESTS REPORTED ELSEWHERE	ATTERBERG LIMITS		STRENGTH TEST DATA				MOISTURE CONTENT (%)	DRY DENSITY (PCF)						
		LIQUID LIMIT (%)	PLASTICITY INDEX (%)	TYPE OF TEST	NORMAL OR CONFINING PRESSURE (PSF)	DEVIATOR STRESS (PSF)	SHEAR STRENGTH (PSF)								
0															
5															
10															
15															
16.25'															
20															
25															
30															
31.75'															
35															
35.25'															
40															
40															
45															
50															
55															
60															
65															
68/10"															
TOTAL DEPTH 40 FEET															
No free underground water encountered at time of drilling.															

# BORING NO. 308

COORDINATES N Not surveyed, for approximate  
E location see Figure 2

FIELD ENGINEER R. Zinner DATE BEGAN 09/6/85  
EDITED BY E. Esmaili DATE FINISHED 09/6/85  
CHECKED BY R. Allen GROUND SURFACE EL. Not measured

DEPTH IN FEET	LABORATORY TEST DATA								PENETRATION RESISTANCE (BLOWS/FT.) SAMPLE	USCS PROFILE	DESCRIPTION	
	TESTS REPORTED ELSEWHERE	ATTERBERG LIMITS		STRENGTH TEST DATA				MOISTURE CONTENT (%)				DRY DENSITY (PCF)
		LIQUID LIMIT (%)	PLASTICITY INDEX (%)	TYPE OF TEST	NORMAL OR CONFINING PRESSURE (PSF)	DEVIATOR STRESS (PSF)	SHEAR STRENGTH (PSF)					
0												
3-1										sc	Dense, brown SAND, some clay and gravel, moist. TLV = 40 ppm at 3 feet.	
41											6.25'	
3-2										sc	Medium dense, brown CLAYEY SAND, trace to some gravel, moist. TLV = 40 ppm at 8 feet.	
23											11.25'	
3-3										cl	Very stiff, dark brown SANDY and SILTY CLAY, moist. TLV = 40 ppm at 13 feet.	
26											16.25'	
3-4										sm/ sp	Medium to very dense, brown SILTY SAND, trace of clay, moist. TLV = 20 ppm at 18 feet.	
17												
3-5											Medium to coarse sand and some gravel from 22.5 feet. TLV = 40 ppm at 22.5 feet.	
70												
3-6											Medium sand from 28 feet. TLV = 40 ppm at 28 feet.	
75											31.0'	
3-7										cl /ml	Hard, gray and brown SILTY CLAY to CLAYEY SILT, moist. TLV = 40 ppm at 33 feet.	
46/6"											35.75'	
3-8										sp	Very dense, gray GRAVELLY SAND, moist. TLV = 40 ppm at 38 feet.	
46/6"												
40											TOTAL DEPTH 40 FEET	
45											No free underground water encountered at time of drilling.	
50												
55												
60												
65												

PROJECT NO. 850009-309  
CLIENT POWERLINE

IT CORPORATION



# BORING NO. 402

COORDINATES N Not surveyed, for approximate  
E location see Figure 2

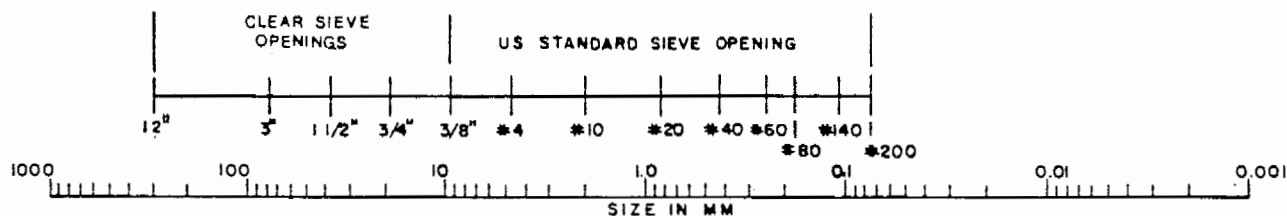
FIELD ENGINEER R. Zinner DATE BEGAN 09/07/85  
EDITED BY E. Esmaili DATE FINISHED 09/07/85  
CHECKED BY R. Allen GROUND SURFACE EL. Not measured

LABORATORY TEST DATA										BORING NO. 402		COORDINATES		N <u>Not surveyed</u> , for approximate E <u>location see Figure 2</u>		FIELD ENGINEER <u>R. Zinner</u> DATE BEGAN <u>09/07/85</u> EDITED BY <u>E. Esmaili</u> DATE FINISHED <u>09/07/85</u> CHECKED BY <u>R. Allen</u> GROUND SURFACE EL. <u>Not measured</u>	
DEPTH IN FEET	TESTS REPORTED ELSEWHERE	ATTERBERG LIMITS		STRENGTH TEST DATA				MOISTURE CONTENT (%)	DRY DENSITY (PCF)	PENETRATION RESISTANCE (BLOWS/FT.) SAMPLE	USCS	PROFILE	DESCRIPTION				
		LIQUID LIMIT (%)	PLASTICITY INDEX (%)	TYPE OF TEST	NORMAL OR CONFINING PRESSURE (PSF)	DEVIATOR STRESS (PSF)	SHEAR STRENGTH (PSF)										
0											cl		Stiff, brown SILTY CLAY, trace of sand, moist. TLV = 90 ppm at 3 feet.				
5										15			6.25'				
											S-2	ml	Medium dense, greenish gray fine SANDY SILT, moist.				
10										29			11.25'				
											S-3	sp	Dense to very dense, gray medium SAND, moist. TLV = 110 ppm at 13 feet.				
15										41							
											S-4		Trace of gravel from 18 feet. TLV = 150 ppm at 18 feet.				
20										45			Medium to coarse sand with trace of gravel from 18 feet. TLV = 120 ppm at 18 feet.				
											S-5						
25										59/8"							
											S-6	ml	Very stiff to hard, gray and brown CLAYEY SILT, some sand, moist. TLV = 120 ppm at 28 feet.				
30										23			26.0'				
											S-7		TLV = 350 ppm at 33 feet.				
35										48			36.25'				
											S-8	sp	Gray, medium SAND, moist. TLV = 220 ppm at 38 feet.				
40										*NC							
													TOTAL DEPTH 40 FEET				
45													*NC = Not Counted				
													No free underground water encountered at time of drilling.				
50																	
55																	
60																	
65																	

PROJECT NO. 850009-402  
CLIENT POWERINE

IT CORPORATION

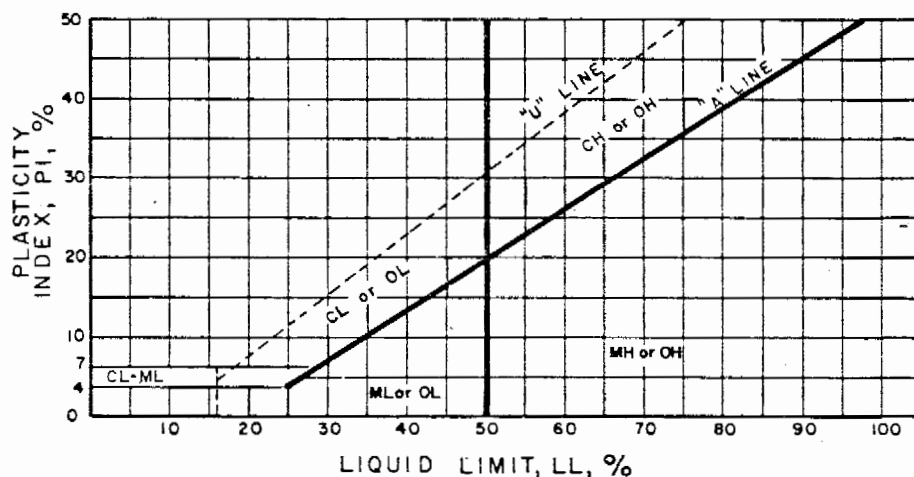
## USCS CLASSIFICATION OF COARSE GRAINED MATERIALS



BOULDERS	COBBLES	GRAVEL		SAND			SILT AND CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE	

## USCS CLASSIFICATION FOR SOILS

## USCS CLASSIFICATION OF FINE GRAINED MATERIALS



## DENSITY OF GRANULAR SOILS

DESIGNATION	SPT BLOWS PER FOOT
VERY LOOSE	0 - 4
LOOSE	5 - 10
MEDIUM DENSITY	11 - 30
DENSE	31 - 50
VERY DENSE	OVER 50

## CONSISTENCY OF COHESIVE SOIL

CONSISTENCY	FIELD IDENTIFICATION	UNCONFINED COMPRESSIVE STRENGTH $q_u$ (TONS/SQ. FT.)
VERY SOFT	EASILY PENETRATED SEVERAL INCHES BY FIRST	LESS THAN 0.25
SOFT	EASILY PENETRATED SEVERAL INCHES BY THUMB	0.25 - 0.5
MEDIUM STIFF	PENETRATED SEVERAL INCHES BY THUMB WITH MODERATE PRESSURE	0.5 - 1.0
STIFF	READILY INDENTED BY THUMB BUT PENETRATED WITH GREAT EFFORT	1.0 - 2.0
VERY STIFF	READILY INDENTED BY THUMBNAIL	2.0 - 4.0
HARD	INDENTED WITH DIFFICULTY BY THUMBNAIL	OVER 4.0

## ABBREVIATIONS FOR LABORATORY TESTS

CHEM— CHEMICAL ANALYSIS  
 COMP— COMPACTION TEST  
 PI — ATTERBERG LIMITS  
 SA — SIEVE ANALYSIS  
 MA — MECHANICAL ANALYSIS  
 HYD — HYDROMETER ANALYSIS  
 CONS— CONSOLIDATION TEST  
 PP — POCKET PENETROMETER

## SAMPLE TYPE

	3" RING SAMPLER	SHELBY TUBE	PITCHER BARREL	2" SPLIT BARREL	BULK SAMPLE
RELATIVELY UNCISTURBED					
DISTURBED					
NO RECOVERY					

## UNIFIED SOIL CLASSIFICATION SYSTEM (USCS)

MAJOR DIVISIONS			GROUP SYMBOLS	GRAPHIC SYMBOLS	TYPICAL NAMES
COARSE-GRAINED SOILS  MORE THAN 50% RETAINED ON NO. 200 SIEVE*	GRAVELS  50% or More of Coarse Fraction Retained on No. 4 Sieve	CLEAN GRAVELS	GW		Well-graded gravels and gravel-sand mixtures, little or no fines
			GP		Poorly graded gravels and gravel-sand mixtures, little or no fines
		GRAVELS WITH FINES	GM		Silty gravels, gravel-sand-silt mixtures
			GC		Clayey gravels, gravel-sand-clay mixtures
	SANDS  More Than 50% of Coarse Fraction Passes No. 4 Sieve	CLEAN SANDS	SW		Well-graded sands and gravelly sands, little or no fines
			SP		Poorly graded sands and gravelly sands, little or no fines
		SANDS WITH FINES	SM		Silty sands, sand-silt mixtures
			SC		Clayey sands, sand-clay mixtures
FINE-GRAINED SOILS  50% OR MORE PASSES NO. 200 SIEVE*	SILTS AND CLAYS  Liquid Limit 50% or Less		ML		Inorganic silts, very fine sands, rock flour, silty or clayey fine sands
			CL		Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
			OL		Organic silts and organic silty clays of low plasticity
	SILTS AND CLAYS  Liquid Limit Greater Than 50%		MH		Inorganic silts, micaceous or diatomaceous fine sands or silts, elastic silts
			CH		Inorganic clays of high plasticity, fat clays
			OR		Organic clays of medium to high plasticity
HIGHLY ORGANIC SOILS		PT		Peat, muck and other highly organic soils	

\*BASED ON THE MATERIAL PASSING THE 3-INCH (75-mm) SIEVE.  
 REFERENCE: ASTM STANDARD D2487

### NOTES:

- (1) UPPER CASE USED FOR LABORATORY VERIFIED USCS CLASSIFICATIONS.
- (2) LOWER CASE USED FOR FIELD USCS CLASSIFICATIONS.
- (3) DUAL USCS SYMBOL, SUCH AS (SP-SM) DENOTES 5 TO 12% OF MINOR CONSTITUENT.
- (4) SUBSURFACE INFORMATION FROM BORING AND TEST PIT LOGS DEPICT CONDITIONS ONLY AT THE SPECIFIC LOCATIONS AND DATES INDICATED. SOIL CONDITIONS AND WATER LEVELS AT OTHER LOCATIONS MAY DIFFER FROM CONDITIONS AT THESE LOCATIONS. ALSO THE CONDITIONS AT THESE LOCATIONS MAY CHANGE WITH TIME.
- (5) BLOW COUNTS ON LOGS ARE THE NUMBER OF BLOWS TO DRIVE THE SAMPLER 12 INCHES WITH A 140 POUND HAMMER FALLING 30 INCHES.

GROUND WATER FIRST ENCOUNTERED

1-1-84 WATER LEVEL AND DATE MEASURED

LEGEND FOR LOG OF  
BORINGS & TEST PITS

IT CORPORATION

APPENDIX  
**B**

APPENDIX B  
LABORATORY CERTIFICATES



IT CORPORATION

# Memorandum

To: E. Esmali

Date: November 7, 1985

From: R. M. Burke

S. H. Cochenour

RMB 11/7/85  
SHC 11/7/85

Subject: Transmittal  
Analytical Results for IT-Irvine/Powerline  
Project No. 85-0009

The IT Analytical Services (ITAS) Murrysville Laboratory has completed the analysis of the ten water samples received in our laboratory on October 15, 1985. Results of the analyses are presented in the enclosed table and were determined in accordance with U.S. Environmental Protection Agency analytical procedures.

Should you have any questions or need additional information, please contact us at our Murrysville Laboratory.

RMB;SHC:ws

TABLE 1  
TOTAL ORGANIC CARBON AND TOTAL ORGANIC HALOGEN ANALYSIS SUMMARY  
FOR IT-IRVINE/POWERINE  
PROJECT NO. 85-0009

SAMPLE IDENTIFICATION	TOTAL ORGANIC CARBON mg/ℓ <sup>(1)</sup>	TOTAL ORGANIC HALOGEN mg/ℓ
85-10-12-101-D	5	0.13
85-10-12-102-D	18	0.22
85-10-12-103-D	12	0.06
85-10-10-104-D	30	0.25
85-10-12-201-D	37	<0.05
85-10-12-202-D	340	<0.05
85-10-10-203-D	28	<0.05
85-10-12-204-D	9	0.06
85-10-11-205-D	4	<0.05
85-10-12-206-D	9	0.06

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<sup>(1)</sup>mg/ℓ = milligrams per liter or parts per million.



IT CORPORATION

# IT ANALYTICAL SERVICES

17885 Pacific Way • Cerritos, California 90701 • 213-921-9831 • 714-523-9200



## CERTIFICATE OF ANALYSIS

Prepared For IT Corporation - Powerline Date October 30, 1985  
17500 Redhill Ave., Suite 100  
Irvine, CA 92714

Attn: Essi Essmaili

October 11, 1985

PJ850009

34677/rjc

One (1) water sample.


The sample was analyzed for Benzene, Toluene and Xylenes using a Tekmar liquid sample concentrator and a Varian 6000 gas chromatograph equipped with a photoionization detector. The sample was prepared according to EPA Method 8020. The results are listed in Table I.

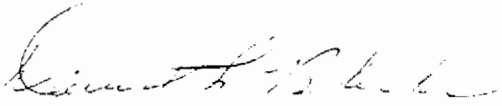
The sample was also analyzed by atomic absorption spectroscopy for the metals listed in Table II. Cyanide analysis was performed according to the specific ion electrode method.

In addition the sample was analyzed for volatile organic contaminants using combined gas chromatography-mass spectrometry according to EPA Method 624, purge and trap. Results for compounds on the EPA Hazardous Substances List are given on the enclosed summary sheets.

Other organic contaminants found are given in Table III.

The sample was also analyzed for inorganic chloride and sulfate anions by ion chromatography. The results are listed in Table IV.

  
Eleanor DeGuzman  
Chemist

  
David Blecha  
Asst. Lab. Manager

IT Corporation  
E. Essmaili

October 30, 1985  
JN: 34677 - Page 2

Table I

<u>Sample</u>	<u>Micrograms/liter (ppb)</u>		
	<u>Benzene</u>	<u>Toluene</u>	<u>Xylenes</u>
85-10-11-205-F	10	TR<1.0	TR<1.0

Table II

	<u>Milligrams/liter</u>
	<u>85-10-12-205</u>
Arsenic	0.05
Cadmium	TR<0.03
Chromium	ND<0.08
Cobalt	ND<0.2
Lead	ND<0.2
Mercury	ND<0.01
Molybdenum	ND<0.8
Nickel	TR<0.1
Selenium	ND<0.01
Vanadium	ND<1
Zinc	0.07
Cyanide	ND<0.1

ND - This compound was not detected; the limit of detection for this analysis is less than the amount stated in the table above.

TR - Trace, this compound was present, but was below the level at which concentration could be determined.

IT Corporation  
E. Essmaili

October 30, 1985  
JN: 34677 - Page 3

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Table III

<u>Sample</u>	<u>Compound</u>	<u>Conc.</u> <u>(Micrograms/liter)</u>
85-10-11-205-C	2,3-Dimethyl butane	3
	Pentane	1
	1,1,3-Trimethylcyclopentane	2
	Unknown hydrocarbons (3)	44

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Table IV

<u>Anion</u>	<u>Concentration (ppm)</u>
Chloride	234
Sulfate	91

GC/MS ORGANICS ANALYSIS DATA SHEET  
VOLATILE COMPOUNDS

IT CORPORATION

SAMPLE IDENTIFICATION: (85-10-11-205-C)  
DATE ANALYZED: 10/16/85  
UNITS: UG/L

CAS #	COMPOUND	CONC
=====	=====	=====
71-43-2	BENZENE	1. ND
56-23-5	CARBON TETRACHLORIDE	1. ND
108-90-7	CHLOROBENZENE	1. ND
107-06-2	1,2-DICHLOROETHANE	1. ND
71-55-6	1,1,1-TRICHLOROETHANE	1. ND
75-34-3	1,1-DICHLOROETHANE	1. ND
79-00-5	1,1,2-TRICHLOROETHANE	1. ND
79-34-5	1,1,2,2-TETRACHLOROETHANE	1. ND
75-00-3	CHLOROETHANE	1. ND
110-75-8	2-CHLOROETHYL VINYL ETHER	10. ND
67-66-3	CHLOROFORM	1. ND
75-35-4	1,1-DICHLOROETHENE	1. ND
156-60-5	TRANS-1,2-DICHLOROETHENE	1. ND
78-87-5	1,2-DICHLOROPROPANE	1. ND
10061-02-6	TRANS-1,3-DICHLOROPROPENE	1. ND
10061-01-5	CIS-1,3-DICHLOROPROPENE	1. ND
100-41-4	ETHYLBENZENE	1. ND
75-09-2	METHYLENE CHLORIDE	1. ND
74-87-3	CHLOROMETHANE	1. ND
74-83-9	BROMOMETHANE	1. ND
75-25-2	BROMOFORM	1. ND
75-27-4	BROMODICHLOROMETHANE	1. ND
124-48-1	CHLORODIBROMOMETHANE	1. ND
127-18-4	TETRACHLOROETHENE	1. ND
108-88-3	TOLUENE	1. ND
79-01-6	TRICHLOROETHENE	1. ND
75-01-4	VINYL CHLORIDE	1. ND
67-64-1	ACETONE	10. ND
78-93-3	2-BUTANONE	10. ND
75-15-0	CARBON DISULFIDE	1. ND
519-78-6	2-HEXANONE	1. ND
108-10-1	4-METHYL-2-PENTANONE	1. ND
100-42-5	STYRENE	1. ND
105-05-4	VINYL ACETATE	1. ND
85-47-8	TOTAL XYLENES	1. ND
106-93-4	ETHYLENE DIBROMIDE	1. ND

IF THIS COMPOUND WAS NOT DETECTED, THE LIMIT OF DETECTION FOR THIS COMPOUND IS STATED TO THE LEFT OF THE ND SPECIFIER.

IF TRACE, THIS COMPOUND WAS PRESENT, BUT WAS BELOW THE LEVEL AT WHICH THE CONCENTRATION COULD ACCURATELY BE DETERMINED. THE APPROXIMATE CONCENTRATION IS REPORTED FOR YOUR REFERENCE.



IT CORPORATION

# IT ANALYTICAL SERVICES

17605 Fabrice Way • Orange, California 92661 • 714-523-9831 • 714-523-9200



## CERTIFICATE OF ANALYSIS

Prepared For: IT Corporation  
17500 Redhill Ave., Suite 100  
Irvine, CA 92714

Date: October 29, 1985

Attn: Essi Esmaili

October 10, 1985

850009

34654/rjc

Two (2) liquid samples.

The samples were analyzed for Benzene, Toluene and Xylenes using a Tekmar liquid sample concentrator and a Varian 6000 gas chromatograph equipped with a photoionization detector. The samples were prepared according to EPA Method 8020. The results are listed in Table I.

The samples were also analyzed for Cyanide by the specific ion electrode method and for metals by atomic absorption spectroscopy. The results of the analyses are listed in Table II.

In addition the samples were analyzed for volatile organic contaminants using combined gas chromatography-mass spectrometry according to EPA Method 624, purge and trap. Results for compounds on the EPA Hazardous Substances List are given on the enclosed summary sheets.

Compounds detected in sample 85-10-10-203D that are not listed in the EPA Hazardous Substances List are listed in Table III.

The samples were also analyzed for inorganic anions by ion chromatography. The results are listed in Table IV.

Eleanor DeGuzman  
Chemist

David Blecha  
Asst. Lab. Manager

IT Corporation  
E. Esmaili

October 29, 1985  
JN: 34654 - Page 2

Table I

	<u>Micrograms/liter (ppb)</u>		
	<u>Benzene</u>	<u>Toluene</u>	<u>Xylenes</u>
85-10-10-104-B	TR<1.0	ND<1.0	TR<1.0
85-10-10-203-B	24	1.3	6.0

Table II

	<u>85-10-10-104</u>	<u>85-10-10-203</u>
Arsenic	TR<0.02	TR<0.02
Cadmium	ND<0.03	0.06
Chromium	ND<0.06	ND<0.06
Cobalt	ND<0.1	ND<0.1
Lead	ND<0.2	ND<0.2
Mercury	ND<0.01	ND<0.01
Molybdenum	ND<0.8	ND<0.8
Nickel	ND<0.1	ND<0.1
Selenium	ND<0.005	ND<0.005
Vanadium	ND<2	ND<2
Zinc	0.04	0.02
Cyanide	ND<0.1	ND<0.1

Table III

<u>Sample #</u>	<u>Compounds</u>	<u>Concentrations (ug/L)</u>
85-10-10-203D	Unknown	100
	Unknown	40
	2-Butanone	20
	2-Methyl-butane	8
	2,3-Dimethyl butane	10
	2,3-Dimethylpentane	6
	1,1,3-Trimethylcyclopentane	9

IT Corporation  
E. Esmaili

October 29, 1985  
JN: 34654 - Page 3

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Table IV

<u>Sample</u>	<u>Concentration Anions (ppm)</u>	
	<u>Chloride</u>	<u>Sulfate</u>
85-10-10-104-E	1200	5
85-10-10-203-E	730	1

ND - This compound was not detected; the limit of detection for this analysis is less than the amount stated in the table above.

TR - Trace, this compound was present, but was below the level at which concentration could be determined.

GC/MS ORGANICS ANALYSIS DATA SHEET  
VOLATILE COMPOUNDS

IT CORPORATION

SAMPLE IDENTIFICATION: 85-10-10-104D  
DATE ANALYZED: 10/11/85  
UNITS: UG/L

CAS #	COMPOUND	CONC
=====	=====	=====
71-43-2	BENZENE	1. ND
56-23-5	CARBON TETRACHLORIDE	1. ND
108-90-7	CHLOROBENZENE	1. ND
107-06-2	1,2-DICHLOROETHANE	1. ND
71-55-6	1,1,1-TRICHLOROETHANE	1. ND
75-34-3	1,1-DICHLOROETHANE	1. ND
79-00-5	1,1,2-TRICHLOROETHANE	1. ND
79-34-5	1,1,2,2-TETRACHLOROETHANE	1. ND
75-00-3	CHLOROETHANE	1. ND
110-75-8	2-CHLOROETHYL VINYL ETHER	10. ND
67-66-3	CHLOROFORM	1. ND
75-35-4	1,1-DICHLOROETHENE	1. ND
156-60-5	TRANS-1,2-DICHLOROETHENE	1. ND
78-87-5	1,2-DICHLOROPROPANE	1. ND
10061-02-6	TRANS-1,3-DICHLOROPROPENE	1. ND
10061-01-5	CIS-1,3-DICHLOROPROPENE	1. ND
100-41-4	ETHYLBENZENE	1. ND
75-09-2	METHYLENE CHLORIDE	1. ND
74-87-3	CHLOROMETHANE	1. ND
74-83-9	BROMOMETHANE	1. ND
75-25-2	BROMOFORM	1. ND
75-27-4	BROMODICHLOROMETHANE	1. ND
124-48-1	CHLORODIBROMOMETHANE	1. ND
127-18-4	TETRACHLOROETHENE	1. ND
108-88-3	TOLUENE	1. ND
79-01-6	TRICHLOROETHENE	1. ND
75-01-4	VINYL CHLORIDE	1. ND
67-64-1	ACETONE	10. ND
78-93-3	2-BUTANONE	10. ND
75-15-0	CARBON DISULFIDE	1. ND
519-78-6	2-HEXANONE	1. ND
108-10-1	4-METHYL-2-PENTANONE	1. ND
100-42-5	STYRENE	1. ND
108-05-4	VINYL ACETATE	1. ND
95-47-6	TOTAL XYLENES	1. ND
106-93-4	ETHYLENE DIBROMIDE	1. ND

ND - THIS COMPOUND WAS NOT DETECTED; THE LIMIT OF DETECTION FOR THIS COMPOUND IS STATED TO THE LEFT OF THE ND SPECIFIER.

TR - TRACE, THIS COMPOUND WAS PRESENT, BUT WAS BELOW THE LEVEL AT WHICH THE CONCENTRATION COULD ACCURATELY BE DETERMINED. THE APPROXIMATE CONCENTRATION IS REPORTED FOR YOUR REFERENCE.

GC/MS ORGANICS ANALYSIS DATA SHEET  
VOLATILE COMPOUNDS

IT CORPORATION

SAMPLE IDENTIFICATION: 85-10-10-203D  
DATE ANALYZED: 10/11/85  
UNITS: UG/L

CAS #	COMPOUND	CONC
=====	=====	=====
71-43-2	BENZENE	24.
56-23-5	CARBON TETRACHLORIDE	1. ND
108-90-7	CHLOROBENZENE	1. ND
107-06-2	1, 2-DICHLOROETHANE	1. ND
71-55-6	1, 1, 1-TRICHLOROETHANE	1. ND
75-34-3	1, 1-DICHLOROETHANE	1. ND
79-00-5	1, 1, 2-TRICHLOROETHANE	1. ND
79-34-5	1, 1, 2, 2-TETRACHLOROETHANE	1. ND
75-00-3	CHLOROETHANE	1. ND
110-75-8	2-CHLOROETHYL VINYL ETHER	10. ND
67-66-3	CHLOROFORM	1. ND
75-35-4	1, 1-DICHLOROETHENE	1. ND
156-60-5	TRANS-1, 2-DICHLOROETHENE	1. ND
78-87-5	1, 2-DICHLOROPROPANE	1. ND
10061-02-6	TRANS-1, 3-DICHLOROPROPENE	1. ND
10061-01-5	CIS-1, 3-DICHLOROPROPENE	1. ND
100-41-4	ETHYLBENZENE	2. TR
75-09-2	METHYLENE CHLORIDE	1. ND
74-87-3	CHLOROMETHANE	1. ND
74-83-9	BROMOMETHANE	1. ND
75-25-2	BROMOFORM	1. ND
75-27-4	BROMODICHLOROMETHANE	1. ND
124-48-1	CHLORODIBROMOMETHANE	1. ND
127-18-4	TETRACHLOROETHENE	1. ND
108-88-3	TOLUENE	1. TR
79-01-6	TRICHLOROETHENE	1. ND
75-01-4	VINYL CHLORIDE	1. ND
67-64-1	ACETONE	10. ND
78-93-3	2-BUTANONE	10. ND
75-15-0	CARBON DISULFIDE	1. ND
519-78-6	2-HEXANONE	1. ND
108-10-1	4-METHYL-2-PENTANONE	1. ND
100-42-5	STYRENE	1. ND
108-05-4	VINYL ACETATE	1. ND
95-47-6	TOTAL XYLENES	2. TR
106-93-4	ETHYLENE DIBROMIDE	1. ND

ND - THIS COMPOUND WAS NOT DETECTED; THE LIMIT OF DETECTION FOR THIS COMPOUND IS STATED TO THE LEFT OF THE ND SPECIFIER.

TR - TRACE, THIS COMPOUND WAS PRESENT, BUT WAS BELOW THE LEVEL AT WHICH THE CONCENTRATION COULD ACCURATELY BE DETERMINED. THE APPROXIMATE CONCENTRATION IS REPORTED FOR YOUR REFERENCE.



IT CORPORATION

# IT ANALYTICAL SERVICES

17605 Fabrice Way • Cerritos, California 90701 • 213-921-9831 • 714-523-9200



## CERTIFICATE OF ANALYSIS

Prepared For: IT Corporation - Powerine  
17500 Redhill Ave., Suite 100  
Irvine, CA 92714

Date: October 25, 1985

Attn: Essi Essmaili

October 12, 1985

Project Number 850009

Analyst 34676/rjc

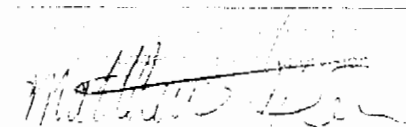
Seven (7) water samples from Powerine,  
Project #850009.

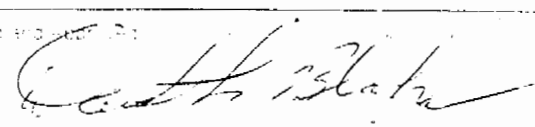
The samples were analyzed for volatile organic contaminants using combined gas chromatography-mass spectrometry according to EPA Method 624, purge and trap. Results for compounds on the EPA Hazardous Substances List are given on the enclosed summary sheets.

Other organic contaminants are given in Table I.

The samples were also analyzed by atomic absorption spectroscopy for the metals listed in Table II. Cyanide analyses were performed on all samples by the specific ion electrode method. Phenols were determined calorimetrically.

In addition, the samples were analyzed for inorganic chloride and sulfate anions by ion chromatography. The results are listed in Table III.

  
Matthew Hein  
Chemist

  
David Blecha  
Asst. Lab. Manager

IT Corporation  
E. EssmailiOctober 25, 1985  
JN: 34676 - Page 2Table I

<u>Sample</u>	<u>Compound</u>	<u>Conc. (ug/L)</u>
85-10-12-101-A	2-Methyl propane	50
	2-Methyl butane	50
	2,3-Dimethyl butane	20
	trans, 1,2-Dimethyl-cyclopentane	40
	1,1,3-Trimethyl cyclopentane	30
85-10-12-102-A	Pentane	40
	Cyclohexane	60
	Methyl cyclopentane	60
85-10-12-103-A	2-Methyl propane	900
	2-Methyl butane	100
	Propyl cyclopropane	100
85-10-12-201-A	2-Methyl propane	80
	2-Methyl-2-butene	70
	Cyclohexane	30
	Ethyl cyclobutane	90
	Cyclohexene	30
85-10-12-202-A	2-Methyl propane	40
	Butane	100
	2-Butene	40
	Cyclopentene	40
	Pentane	70
	2-Methyl-2-butene	90
	Methyl cyclopentane	100
85-10-12-204-A	Unknown hydrocarbon	7
	2,3-Dimethyl pentane	15
	2,2,4-Trimethyl pentane	44
85-10-12-205-A	2-Methyl propane	10
	2,3-Dimethyl butane	10
	3-Methyl pentane	10
85-10-12-206-A	2-Methyl propane	100
	2-Butene	100
	Unknown hydrocarbon	60
	2-Methyl-2-butene	200
	Methyl cyclopentane	200

IT Corporation  
E. Essmaili

October 25, 1985  
JN: 34676 - Page 3

Table II

	Milligrams/liter		
	<u>85-10-12-101</u>	<u>85-10-12-102</u>	<u>85-10-12-103</u>
Arsenic	0.09	0.08	ND<0.005
Cadmium	TR<0.03	TR<0.03	TR<0.03
Chromium	ND<0.08	ND<0.08	ND<0.08
Cobalt	ND<0.2	ND<0.2	ND<0.2
Lead	ND<0.2	ND<0.2	ND<0.2
Mercury	ND<0.01	ND<0.01	ND<0.01
Molybdenum	ND<0.8	ND<0.8	ND<0.8
Nickel	TR<0.1	TR<0.1	TR<0.1
Selenium	ND<0.01	ND<0.01	ND<0.01
Vanadium	ND<1	ND<1	ND<1
Zinc	0.1	0.1	0.09
Cyanide	ND<0.1	ND<0.1	ND<0.1
Phenol	<0.1	6.8	<0.1

	Milligrams/liter			
	<u>85-10-12-201</u>	<u>85-10-12-202</u>	<u>85-10-12-204</u>	<u>85-10-12-206</u>
Arsenic	0.07	0.01	ND<0.005	0.02
Cadmium	TR<0.03	TR<0.03	TR<0.03	TR<0.03
Chromium	ND<0.08	ND<0.08	ND<0.08	ND<0.08
Cobalt	ND<0.2	ND<0.2	ND<0.2	ND<0.2
Lead	ND<0.2	ND<0.2	ND<0.2	ND<0.2
Mercury	ND<0.01	ND<0.01	ND<0.01	ND<0.01
Molybdenum	ND<0.8	ND<0.8	ND<0.8	ND<0.8
Nickel	TR<0.1	TR<0.1	TR<0.1	TR<0.1
Selenium	ND<0.01	ND<0.01	ND<0.01	ND<0.01
Vanadium	ND<1	ND<1	ND<1	ND<1
Zinc	0.1	0.06	0.1	0.08
Cyanide	ND<0.1	ND<0.1	ND<0.1	ND<0.1
Phenol	0.1	1.9	ND<0.1	0.4

ND - This compound was not detected; the limit of detection for this analysis is less than the amount stated in the table above.

TR - Trace, this compound was present, but was below the level at which concentration could be determined.

IT Corporation  
E. Essmaili

October 25, 1985  
JN: 34676 - Page 4

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Table III

<u>Sample</u>	<u>Concentration (ppm)</u>	
	<u>Chloride</u>	<u>Sulfate</u>
85-10-12-101-E	290	175
85-10-12-102-E	220	5
85-10-12-103-E	710	ND<5
85-10-12-201-E	350	49
85-10-12-202-E	90	ND<5
85-10-12-204-E	420	5
85-10-12-206-E	300	36

GC/MS ORGANICS ANALYSIS DATA SHEET  
VOLATILE COMPOUNDSSAMPLE IDENTIFICATION: 85-10-12-101-A  
DATE ANALYZED: 10/15/85  
UNITS: UG/L

CAS #	COMPOUND	CONC
=====	=====	=====
71-43-2	BENZENE	35. TR
56-23-5	CARBON TETRACHLORIDE	5. ND
108-90-7	CHLOROBENZENE	5. ND
107-06-2	1, 2-DICHLOROETHANE	5. ND
71-55-6	1, 1, 1-TRICHLOROETHANE	5. ND
75-34-3	1, 1-DICHLOROETHANE	5. ND
79-00-5	1, 1, 2-TRICHLOROETHANE	5. ND
79-34-5	1, 1, 2, 2-TETRACHLOROETHANE	5. ND
75-00-3	CHLOROETHANE	5. ND
110-75-8	2-CHLOROETHYL VINYL ETHER	50. ND
67-66-3	CHLOROFORM	5. ND
75-35-4	1, 1-DICHLOROETHENE	5. ND
156-60-5	TRANS-1, 2-DICHLOROETHENE	5. ND
78-87-5	1, 2-DICHLOROPROPANE	5. ND
105-1-02-6	TRANS-1, 3-DICHLOROPROPENE	5. ND
105-1-01-5	CIS-1, 3-DICHLOROPROPENE	5. ND
100-41-4	ETHYLBENZENE	5. ND
75-09-2	METHYLENE CHLORIDE	5. ND
74-87-3	CHLOROMETHANE	5. ND
75-63-9	BROMOMETHANE	5. ND
75-15-2	BROMOFORM	5. ND
75-27-4	BROMODICHLOROMETHANE	5. ND
124-48-1	CHLORODIBROMOMETHANE	5. ND
127-18-4	TETRACHLOROETHENE	5. ND
108-88-3	TOLUENE	5. ND
79-01-6	TRICHLOROETHENE	5. ND
75-01-4	VINYL CHLORIDE	5. ND
67-64-1	ACETONE	50. ND
78-93-3	2-BUTANONE	50. ND
75-15-0	CARBON DISULFIDE	5. ND
919-78-6	2-HEXANONE	5. ND
108-10-1	4-METHYL-2-PENTANONE	5. ND
100-42-5	STYRENE	5. ND
108-05-4	VINYL ACETATE	5. ND
95-47-6	TOTAL XYLENES	5. ND
106-93-4	ETHYLENE DIBROMIDE	5. ND

ND - THIS COMPOUND WAS NOT DETECTED; THE LIMIT OF DETECTION FOR THIS COMPOUND IS STATED TO THE LEFT OF THE ND SPECIFIER

TR - TRACE, THIS COMPOUND WAS PRESENT, BUT WAS BELOW THE LEVEL AT WHICH THE CONCENTRATION COULD ACCURATELY BE DETERMINED. THE APPROXIMATE CONCENTRATION IS REPORTED FOR YOUR REFERENCE.

GC/MS ORGANICS ANALYSIS DATA SHEET  
VOLATILE COMPOUNDS

SAMPLE IDENTIFICATION: 85-10-12-102-A  
 DATE ANALYZED: 10/15/85  
 UNITS: UG/L

CAS #	COMPOUND	CONC
=====	=====	=====
71-43-2	BENZENE	8400.
56-23-5	CARBON TETRACHLORIDE	25. ND
108-90-7	CHLOROBENZENE	25. ND
107-06-2	1,2-DICHLOROETHANE	230. TR
71-55-6	1,1,1-TRICHLOROETHANE	25. ND
75-34-3	1,1-DICHLOROETHANE	25. ND
79-00-5	1,1,2-TRICHLOROETHANE	25. ND
79-34-5	1,1,2,2-TETRACHLOROETHANE	25. ND
75-00-3	CHLOROETHANE	25. ND
110-75-8	2-CHLOROETHYL VINYL ETHER	250. ND
67-66-3	CHLOROFORM	25. ND
75-35-4	1,1-DICHLOROETHENE	25. ND
156-60-5	TRANS-1,2-DICHLOROETHENE	25. ND
78-87-5	1,2-DICHLOROPROPANE	25. ND
10061-02-6	TRANS-1,3-DICHLOROPROPENE	25. ND
10061-01-5	CIS-1,3-DICHLOROPROPENE	25. ND
100-41-4	ETHYLBENZENE	1200.
75-09-2	METHYLENE CHLORIDE	25. ND
74-87-3	CHLOROMETHANE	25. ND
74-83-9	BROMOMETHANE	25. ND
75-25-2	BROMOFORM	25. ND
75-27-4	BROMODICHLOROMETHANE	25. ND
124-48-1	CHLORODIBROMOMETHANE	25. ND
127-18-4	TETRACHLOROETHENE	25. ND
108-88-3	TOLUENE	2400.
79-01-6	TRICHLOROETHENE	25. ND
75-01-4	VINYL CHLORIDE	25. ND
67-64-1	ACETONE	3700.
78-93-3	2-BUTANONE	1800. TR
75-15-0	CARBON DISULFIDE	25. ND
519-78-6	2-HEXANONE	25. ND
108-10-1	4-METHYL-2-PENTANONE	25. ND
100-42-5	STYRENE	25. ND
108-05-4	VINYL ACETATE	25. ND
95-47-6	TOTAL XYLENES	7300.
106-93-4	ETHYLENE DIBROMIDE	25. ND

ND - THIS COMPOUND WAS NOT DETECTED; THE LIMIT OF DETECTION FOR THIS COMPOUND IS STATED TO THE LEFT OF THE ND SPECIFIER.

TR - TRACE, THIS COMPOUND WAS PRESENT, BUT WAS BELOW THE LEVEL AT WHICH THE CONCENTRATION COULD ACCURATELY BE DETERMINED. THE APPROXIMATE CONCENTRATION IS REPORTED FOR YOUR REFERENCE.

GC/MS ORGANICS ANALYSIS DATA SHEET  
VOLATILE COMPOUNDS

SAMPLE IDENTIFICATION: 85-10-12-103-A  
 DATE ANALYZED: 10/15/85  
 UNITS: UG/L

CAS #	COMPOUND	CONC
=====	=====	=====
71-43-2	BENZENE	190. TR
56-23-5	CARBON TETRACHLORIDE	25. ND
108-90-7	CHLOROBENZENE	25. ND
107-06-2	1,2-DICHLOROETHANE	25. ND
71-55-6	1,1,1-TRICHLOROETHANE	25. ND
75-34-3	1,1-DICHLOROETHANE	25. ND
79-00-5	1,1,2-TRICHLOROETHANE	25. ND
79-34-5	1,1,2,2-TETRACHLOROETHANE	25. ND
75-00-3	CHLOROETHANE	25. ND
110-75-8	2-CHLOROETHYL VINYL ETHER	250. ND
67-66-3	CHLOROFORM	25. ND
75-35-4	1,1-DICHLOROETHENE	25. ND
156-60-5	TRANS-1,2-DICHLOROETHENE	25. ND
78-87-5	1,2-DICHLOROPROPANE	25. ND
10061-02-6	TRANS-1,3-DICHLOROPROPENE	25. ND
10061-01-5	CIS-1,3-DICHLOROPROPENE	25. ND
100-41-4	ETHYLBENZENE	25. ND
75-09-2	METHYLENE CHLORIDE	25. ND
74-87-3	CHLOROMETHANE	25. ND
74-83-9	BROMOMETHANE	25. ND
75-25-2	BROMOFORM	25. ND
75-27-4	BROMODICHLOROMETHANE	25. ND
124-48-1	CHLORODIBROMOMETHANE	25. ND
127-18-4	TETRACHLOROETHENE	25. ND
108-88-3	TOLUENE	12. TR
79-01-6	TRICHLOROETHENE	25. ND
75-01-4	VINYL CHLORIDE	25. ND
67-64-1	ACETONE	250. ND
78-93-3	2-BUTANONE	250. ND
75-15-0	CARBON DISULFIDE	25. ND
519-78-6	2-HEXANONE	25. ND
102-10-1	4-METHYL-2-PENTANONE	25. ND
100-42-5	STYRENE	25. ND
125-05-4	VINYL ACETATE	25. ND
106-47-8	TOTAL XYLENES	25. ND
106-93-4	ETHYLENE DIBROMIDE	25. ND

ND - THIS COMPOUND WAS NOT DETECTED. THE LIMIT OF DETECTION FOR THIS COMPOUND IS STATED TO THE LEFT OF THE ND SPECIFIER.

TR - TRACE. THIS COMPOUND WAS PRESENT, BUT WAS BELOW THE LEVEL AT WHICH THE CONCENTRATION COULD ACCURATELY BE DETERMINED. THE APPROXIMATE CONCENTRATION IS REPORTED FOR YOUR REFERENCE.

GC/MS ORGANICS ANALYSIS DATA SHEET  
VOLATILE COMPOUNDS

SAMPLE IDENTIFICATION: 85-10-12-201-A  
 DATE ANALYZED: 10/15/85  
 UNITS: UG/L

CAS #	COMPOUND	CONC
=====	=====	=====
71-43-2	BENZENE	1600.
56-23-5	CARBON TETRACHLORIDE	5. ND
108-90-7	CHLOROBENZENE	5. ND
107-06-2	1,2-DICHLOROETHANE	5. ND
71-55-6	1,1,1-TRICHLOROETHANE	5. ND
75-34-3	1,1-DICHLOROETHANE	5. ND
79-00-5	1,1,2-TRICHLOROETHANE	5. ND
79-34-5	1,1,2,2-TETRACHLOROETHANE	5. ND
75-00-3	CHLOROETHANE	5. ND
110-75-8	2-CHLOROETHYL VINYL ETHER	50. ND
67-66-3	CHLOROFORM	5. ND
75-35-4	1,1-DICHLOROETHENE	5. ND
156-60-5	TRANS-1,2-DICHLOROETHENE	5. ND
78-87-5	1,2-DICHLOROPROPANE	5. ND
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5. ND
10061-01-5	CIS-1,3-DICHLOROPROPENE	5. ND
100-41-4	ETHYLBENZENE	140.
75-09-2	METHYLENE CHLORIDE	5. ND
74-87-3	CHLOROMETHANE	5. ND
74-83-9	BROMOMETHANE	5. ND
75-25-2	BROMOFORM	5. ND
75-27-4	BROMODICHLOROMETHANE	5. ND
124-48-1	CHLORODIBROMOMETHANE	5. ND
127-18-4	TETRACHLOROETHENE	5. ND
108-88-3	TOLUENE	650.
79-01-6	TRICHLOROETHENE	5. ND
75-01-4	VINYL CHLORIDE	5. ND
67-64-1	ACETONE	1500.
78-93-3	2-BUTANONE	860.
75-15-0	CARBON DISULFIDE	5. ND
519-78-6	2-HEXANONE	5. ND
108-10-1	4-METHYL-2-PENTANONE	5. ND
100-42-5	STYRENE	5. ND
108-05-4	VINYL ACETATE	5. ND
95-47-6	TOTAL XYLENES	260.
106-93-4	ETHYLENE DIBROMIDE	5. ND

ND - THIS COMPOUND WAS NOT DETECTED; THE LIMIT OF DETECTION FOR THIS COMPOUND IS STATED TO THE LEFT OF THE ND SPECIFIER.

TR - TRACE; THIS COMPOUND WAS PRESENT, BUT WAS BELOW THE LEVEL AT WHICH THE CONCENTRATION COULD ACCURATELY BE DETERMINED. THE APPROXIMATE CONCENTRATION IS REPORTED FOR YOUR REFERENCE.

GC/MS ORGANICS ANALYSIS DATA SHEET  
VOLATILE COMPOUNDS

SAMPLE IDENTIFICATION: 85-10-12-202-A  
 DATE ANALYZED: 10/15/85  
 UNITS: UG/L

CAS # =====	COMPOUND =====	CONC =====
71-43-2	BENZENE	1600.
56-23-5	CARBON TETRACHLORIDE	5. ND
108-90-7	CHLOROBENZENE	5. ND
107-06-2	1,2-DICHLOROETHANE	29. TR
71-55-6	1,1,1-TRICHLOROETHANE	5. ND
75-34-3	1,1-DICHLOROETHANE	5. ND
79-00-5	1,1,2-TRICHLOROETHANE	5. ND
79-34-5	1,1,2,2-TETRACHLOROETHANE	5. ND
75-00-3	CHLOROETHANE	5. ND
110-75-8	2-CHLOROETHYL VINYL ETHER	50. ND
67-66-3	CHLOROFORM	5. ND
75-35-4	1,1-DICHLOROETHENE	5. ND
156-80-5	TRANS-1,2-DICHLOROETHENE	5. ND
76-87-5	1,2-DICHLOROPROPANE	5. ND
10081-12-6	TRANS-1,3-DICHLOROPROPENE	5. ND
10081-01-5	CIS-1,3-DICHLOROPROPENE	5. ND
100-41-4	ETHYLBENZENE	280.
75-09-2	METHYLENE CHLORIDE	130.
74-87-3	CHLOROMETHANE	5. ND
74-83-9	BROMOMETHANE	5. ND
75-25-2	BROMOFORM	5. ND
75-27-4	BROMODICHLOROMETHANE	5. ND
124-48-1	CHLORODIBROMOMETHANE	5. ND
127-18-4	TETRACHLOROETHENE	5. ND
108-88-3	TOLUENE	1500.
79-01-6	TRICHLOROETHENE	5. ND
75-01-4	VINYL CHLORIDE	5. ND
67-64-1	ACETONE	50. ND
78-93-3	2-BUTANONE	1000.
75-15-0	CARBON DISULFIDE	5. ND
519-78-6	2-HEXANONE	51.
108-10-1	4-METHYL-2-PENTANONE	5. ND
100-42-5	STYRENE	5. ND
108-05-4	VINYL ACETATE	5. ND
95-47-6	TOTAL XYLENES	2200.
106-93-4	ETHYLENE DIBROMIDE	5. ND

ND - THIS COMPOUND WAS NOT DETECTED; THE LIMIT OF DETECTION FOR THIS COMPOUND IS STATED TO THE LEFT OF THE ND SPECIFIER.

TR - TRACE, THIS COMPOUND WAS PRESENT, BUT WAS BELOW THE LEVEL AT WHICH THE CONCENTRATION COULD ACCURATELY BE DETERMINED. THE APPROXIMATE CONCENTRATION IS REPORTED FOR YOUR REFERENCE.

GC/MS ORGANICS ANALYSIS DATA SHEET  
VOLATILE COMPOUNDS

SAMPLE IDENTIFICATION: 85-10-12-204-A  
 DATE ANALYZED: 10/16/85  
 UNITS: UG/L

CAS #	COMPOUND	CONC
=====	=====	=====
71-43-2	BENZENE	16.
56-23-5	CARBON TETRACHLORIDE	1. ND
108-90-7	CHLOROBENZENE	1. ND
107-06-2	1,2-DICHLOROETHANE	43.
71-55-6	1,1,1-TRICHLOROETHANE	1. ND
75-34-3	1,1-DICHLOROETHANE	1. ND
79-00-5	1,1,2-TRICHLOROETHANE	1. ND
79-34-5	1,1,2,2-TETRACHLOROETHANE	1. ND
75-00-3	CHLOROETHANE	1. ND
110-75-8	2-CHLOROETHYL VINYL ETHER	10. ND
67-66-3	CHLOROFORM	1. ND
75-35-4	1,1-DICHLOROETHENE	1. ND
156-60-5	TRANS-1,2-DICHLOROETHENE	1. ND
78-87-5	1,2-DICHLOROPROPANE	1. ND
10061-02-6	TRANS-1,3-DICHLOROPROPENE	1. ND
10061-01-5	CIS-1,3-DICHLOROPROPENE	1. ND
100-41-4	ETHYLBENZENE	1. ND
75-09-2	METHYLENE CHLORIDE	1. ND
74-87-3	CHLOROMETHANE	1. ND
74-83-9	BROMOMETHANE	1. ND
75-25-2	BROMOFORM	1. ND
75-27-4	BROMODICHLOROMETHANE	1. ND
124-48-1	CHLORODIBROMOMETHANE	1. ND
127-18-4	TETRACHLOROETHENE	1. ND
108-88-3	TOLUENE	1. ND
79-01-6	TRICHLOROETHENE	1. ND
75-01-4	VINYL CHLORIDE	1. ND
67-64-1	ACETONE	10. ND
78-93-3	2-BUTANONE	10. ND
75-15-0	CARBON DISULFIDE	1. ND
519-78-6	2-HEXANONE	1. ND
108-10-1	4-METHYL-2-PENTANONE	1. ND
100-42-5	STYRENE	1. ND
108-05-4	VINYL ACETATE	1. ND
95-47-6	TOTAL XYLENES	1. ND
106-93-4	ETHYLENE DIBROMIDE	1. ND

ND - THIS COMPOUND WAS NOT DETECTED; THE LIMIT OF DETECTION FOR THIS COMPOUND IS STATED TO THE LEFT OF THE ND SPECIFIER.

TR - TRACE, THIS COMPOUND WAS PRESENT, BUT WAS BELOW THE LEVEL AT WHICH THE CONCENTRATION COULD ACCURATELY BE DETERMINED THE APPROXIMATE CONCENTRATION IS REPORTED FOR YOUR REFERENCE

GC/MS ORGANICS ANALYSIS DATA SHEET  
VOLATILE COMPOUNDS

SAMPLE IDENTIFICATION: 85-10-12-205-A  
 DATE ANALYZED: 10/15/85  
 UNITS: UG/L

CAS #	COMPOUND	CONC
=====	=====	=====
71-43-2	BENZENE	43. TR
56-23-5	CARBON TETRACHLORIDE	5. ND
108-90-7	CHLOROBENZENE	5. ND
107-06-2	1,2-DICHLOROETHANE	5. ND
71-55-6	1,1,1-TRICHLOROETHANE	5. ND
75-34-3	1,1-DICHLOROETHANE	5. ND
79-00-5	1,1,2-TRICHLOROETHANE	5. ND
79-34-5	1,1,2,2-TETRACHLOROETHANE	5. ND
75-00-3	CHLOROETHANE	5. ND
110-75-8	2-CHLOROETHYL VINYL ETHER	50. ND
67-66-3	CHLOROFORM	5. ND
75-35-4	1,1-DICHLOROETHENE	5. ND
156-60-5	TRANS-1,2-DICHLOROETHENE	5. ND
78-87-5	1,2-DICHLOROPROPANE	5. ND
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5. ND
10061-01-5	CIS-1,3-DICHLOROPROPENE	5. ND
100-41-4	ETHYLBENZENE	5. ND
75-09-2	METHYLENE CHLORIDE	5. ND
74-87-3	CHLOROMETHANE	5. ND
74-83-9	BROMOMETHANE	5. ND
75-25-2	BROMOFORM	5. ND
75-27-4	BROMODICHLOROMETHANE	5. ND
124-48-1	CHLORODIBROMOMETHANE	5. ND
127-18-4	TETRACHLOROETHENE	5. ND
108-88-3	TOLUENE	5. ND
79-01-6	TRICHLOROETHENE	5. ND
75-01-4	VINYL CHLORIDE	5. ND
67-64-1	ACETONE	11. TR
78-93-3	2-BUTANONE	250. TR
75-15-0	CARBON DISULFIDE	5. ND
519-78-6	2-HEXANONE	5. ND
108-10-1	4-METHYL-2-PENTANONE	9. TR
100-42-5	STYRENE	5. ND
108-05-4	VINYL ACETATE	5. ND
95-47-6	TOTAL XYLENES	5. ND
106-93-4	ETHYLENE DIBROMIDE	5. ND

ND - THIS COMPOUND WAS NOT DETECTED; THE LIMIT OF DETECTION FOR THIS COMPOUND IS STATED TO THE LEFT OF THE ND SPECIFIER.

TR - TRACE, THIS COMPOUND WAS PRESENT, BUT WAS BELOW THE LEVEL AT WHICH THE CONCENTRATION COULD ACCURATELY BE DETERMINED. THE APPROXIMATE CONCENTRATION IS REPORTED FOR YOUR REFERENCE.

GC/MS ORGANICS ANALYSIS DATA SHEET  
VOLATILE COMPOUNDS

SAMPLE IDENTIFICATION: 85-10-12-206-A  
 DATE ANALYZED: 10/15/85  
 UNITS: UG/L

CAS # =====	COMPOUND =====	CONC =====
71-43-2	BENZENE	4600.
56-23-5	CARBON TETRACHLORIDE	5. ND
108-90-7	CHLOROBENZENE	5. ND
107-06-2	1,2-DICHLOROETHANE	5. ND
71-55-6	1,1,1-TRICHLOROETHANE	5. ND
75-34-3	1,1-DICHLOROETHANE	5. ND
79-00-5	1,1,2-TRICHLOROETHANE	5. ND
79-34-5	1,1,2,2-TETRACHLOROETHANE	5. ND
75-00-3	CHLOROETHANE	5. ND
110-75-8	2-CHLOROETHYL VINYL ETHER	50. ND
67-66-3	CHLOROFORM	5. ND
75-35-4	1,1-DICHLOROETHENE	5. ND
156-60-5	TRANS-1,2-DICHLOROETHENE	5. ND
78-87-5	1,2-DICHLOROPROPANE	5. ND
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5. ND
10061-01-5	CIS-1,3-DICHLOROPROPENE	5. ND
100-41-4	ETHYLBENZENE	78.
75-09-2	METHYLENE CHLORIDE	5. ND
74-87-3	CHLOROMETHANE	5. ND
74-83-9	BROMOMETHANE	5. ND
75-25-2	BROMOFORM	5. ND
75-27-4	BROMODICHLOROMETHANE	5. ND
124-48-1	CHLORODIBROMOMETHANE	5. ND
127-18-4	TETRACHLOROETHENE	5. ND
108-88-3	TOLUENE	3000.
79-01-6	TRICHLOROETHENE	5. ND
75-01-4	VINYL CHLORIDE	5. ND
67-64-1	ACETONE	3600.
78-93-3	2-BUTANONE	1600.
75-15-0	CARBON DISULFIDE	5. ND
519-78-6	2-HEXANONE	5. ND
108-10-1	4-METHYL-2-PENTANONE	5. ND
100-42-5	STYRENE	5. ND
108-05-4	VINYL ACETATE	5. ND
95-47-6	TOTAL XYLENES	6200.
106-93-4	ETHYLENE DIBROMIDE	5. ND

ND - THIS COMPOUND WAS NOT DETECTED; THE LIMIT OF DETECTION FOR THIS COMPOUND IS STATED TO THE LEFT OF THE ND SPECIFIER.

TR - TRACE, THIS COMPOUND WAS PRESENT, BUT WAS BELOW THE LEVEL AT WHICH THE CONCENTRATION COULD ACCURATELY BE DETERMINED. THE APPROXIMATE CONCENTRATION IS REPORTED FOR YOUR REFERENCE.



IT CORPORATION

# IT ANALYTICAL SERVICES

17605 Fabrica Way • Cerritos California 90701 • 213-921-9831 • 714-523-9200



## CERTIFICATE OF ANALYSIS

Prepared For: IT Corporation - Powerline Oil Date: October 10, 1985  
17500 Redhill Ave., Suite 100  
Irvine, CA 92714

Attn: Essi

Report Date: September 6, 1985 Report Number: 850009 Sample Number: 34350/rjc

### SUPPLEMENTAL REPORT

Seven (7) soil samples.

This report contains the results of T.O.X. analyses on these soil samples. Other results were given in our report dated 9-26-86.

#### T.O.X., milligrams/kilogram

102, S-17, 83.5-84.0	<20
304, S-2, 8.5-9.0	<20
304, S-8, 38.5-39.0	<20
305, S-2, 8.5-9.0	<20
305, S-8, 38.5-39.0	<20
306, S-2, 8.5-9.0	<20
306, S-8, 38.5-39.0	<20

*Judith A. Jones*

Judith A. Jones  
Analytical Chemist

*Steve Jones*

Steve Jones, Ph.D.  
Technical Director



# IT ANALYTICAL SERVICES

17605 Fabrica Way • Cerritos, California 90701 • 213-921-9831 • 714-523-9200

## CERTIFICATE OF ANALYSIS

Prepared For IT Corporation - Powerline Oil Date October 10, 1985  
17500 Redhill Ave., Suite 100  
Irvine, CA 92714

Attn: Essi

Report Date September 4, 1985 Report Number PC3551/PJ #850009 Analyst 34337/rjc

### SUPPLEMENTAL REPORT

Five (5) soil samples.

This report contains the results of T.O.X. analyses on these soil samples. Other results were given in our report dated 9-27-85.

	<u>T.O.X., milligrams/kilogram</u>
102, S-2, 8.5-9.0	<20
102, S-3, 13.5-14.0	<20
103, S-1, 3.5-4.0	26
103, S-3, 13.5-14.0	<20
103, S-17, 83-83.5	<20

Judith A. Jones  
Analytical Chemist

Steve Jones, Ph.D.  
Technical Director



IT CORPORATION

# IT ANALYTICAL SERVICES

17625 Fabrice Way • Cerritos, California 90701 • 213-921-9831 • 714-523-9200



## CERTIFICATE OF ANALYSIS

Prepared For: IT Corporation - Powerine Oil Date: October 11, 1985  
17500 Redhill Ave., Suite 100  
Irvine, CA 92714

Attn: Paul Zinner

September 9, 1985

PJ850009/  
PC3551

34377/rjc

### SUPPLEMENTAL REPORT

Ten (10) soil samples from Powerine Oil,  
Project #850009.

This report contains T.O.X. results for these soil samples. Other results for these samples were presented in our report dated 9-26-85.

#### T.O.X., milligrams/kilogram

102, S-10, 48.5-49.0	<15
201, S-2, 8.5-9.0	17
301, S-6, 28.5-29.0	<15
309, S-2, 8.5-9.0	17
309, S-8, 38.5-39.0	<15
401, S-4, 18.5-19.0	<15
401, S-8, 38.5-39.0	<15
402, S-2, 8.5-9.0	29
402, S-7, 33.5-34.0	<15

Judith A. Jones  
Analytical Chemist

Steve Jones, Ph.D.  
Technical Director



IT CORPORATION

# IT ANALYTICAL SERVICES

17605 Fabrica Way • Cerritos, California 90701 • 213-921-9831 • 714-623-9200



## CERTIFICATE OF ANALYSIS

Prepared For IT Corporation - Powerine Oil Date: October 11, 1985  
17500 Redhill Ave., Suite 100  
Irvine, CA 92714

Attn: John Ficke

September 11, 1985

PJ850009

34407/rjc

### SUPPLEMENTAL REPORT


Ten (10) soil samples from Powerine Oil,  
Project #850009.

This report contains T.O.X. results for these soil samples. Other results for these samples were presented in our report dated 9-30-85.

#### T.O.X., milligrams/kilogram

201, S-9, 83.5-84.0	<15
203, S-2, 8.5-9.0	<15
203, S-3, 13.5-14.0	<15
203, S-18, 88.5-89.0	<15

Judith A. Jones  
Analytical Chemist

  
Steve Jones, Ph.D.  
Technical Director



IT CORPORATION

# IT ANALYTICAL SERVICES

17605 Fabrice Way • Cerritos, California 90701 • 213-921-9831 • 714-523-9200



## CERTIFICATE OF ANALYSIS

Prepared For IT Corporation - Powerine Oil Date October 11, 1985  
17500 Redhill Ave., Suite 100  
Irvine, CA 92714  
Attn: Ron Zinner

IT CORP.

OCT 15 1985

IRVINE BRANCH

September 6, 1985

PJ850009

34360/rjc

### SUPPLEMENTAL REPORT

Six (6) soil samples from Powerine Oil,  
Project #850009.

This report contains T.O.X. results for these soil samples, along with inorganic results for sample #301, S-2, 8.5-9.0. Other results for these samples were presented in our report dated 9-26-85.

Judith A. Jones  
Analytical Chemist

Steve Jones, Ph.D.  
Technical Director

IT Corporation  
R. Zinner

October 11, 1985  
JN: 34360 - Page 2

Table I

	<u>T.O.X., milligrams/kilogram</u>
301, S-2, 8.5-9.0	<15
301, S-8, 38.5-39.0	<15
302, S-2, 8.5-9.0	22
302, S-8, 38.5-39.0	<15
308, S-2, 8.5-9.0	<15
308, S-8, 38.5-39.0	<15

Table II

	<u>Milligrams/kilogram</u>
	<u>301, S-2, 8.5-9.0</u>
Arsenic	0.9
Cadmium	0.4
Chromium	15
Cobalt	12
Lead	8
Mercury	0.05
Molybdenum	ND<8
Nickel	23
Selenium	TR<0.1
Vanadium	39
Zinc	4

Table III

	<u>Milligrams/kilogram</u>
	<u>301, S-2, 8.5-9.0</u>
Cyanides	2
Oil and grease	14
T.O.X.	<15

ND - This compound was not detected; the limit of detection for this analysis is less than the amount stated in the table above.

TR - Trace, this compound was present, but was below the level at which concentration could be determined.



IT CORPORATION

# IT ANALYTICAL SERVICES

17605 Fabrica Way • Cerritos, California 90701 • 213-921-9831 714-523-9200

## CERTIFICATE OF ANALYSIS

Prepared For: IT Corporation - Powerline Oil Date: October 16, 1985  
17500 Redhill Ave., Suite 100  
Irvine, CA 92714

Attn: Essi Esmaili

September 20, 1985

850009/PC2521

34496/rjc

### SUPPLEMENTAL REPORT

Nine (9) soil samples.

This report contains T.O.X. results for the samples. Other results were presented in our report dated 10-10-85.

<u>Sample</u>	<u>T.O.X., milligrams/kilogram</u>
202, S-2	<14
202, S-5	<14
204, S-1	<14
204, S-7	22
206, S-2	19
206, S-3	<14
206, S-7	23
303, S-3	17
303, S-6	<14

Matthew Hein  
Chemist

David Blecha  
Asst. Lab. Manager



IT CORPORATION

# IT ANALYTICAL SERVICES

17615 Redhill Ave. • Services • California 92714 • 714-921-9831 • 714-921-9200

IT CORP.

## CERTIFICATE OF ANALYSIS

OCT 18 1985

Prepared for: IT Corporation - Powerine Oil Co. Date: October 14, 1985  
17500 Redhill Ave., Suite 100  
Irvine, CA 92714  
Attn: Essi Esmaili

September 16, 1985

850009

34439/rjc

### SUPPLEMENTAL REPORT

Five (5) soil samples, from Powerine Oil Co.,  
Project #850009.

This report contains T.O.X. results for these samples. Other results were presented in our report dated 10-10-85.

#### T.O.X., milligrams/kilogram

205, S-2, 8.5-9.0	<17
205, S-3, 14.0-14.5	<17
205, S-7, 68.5-69.0	<17
307, S-2, 8.5-9.0	<17
307, S-8, 38.5-39.0	<17

Judith A. Jones  
Analytical Chemist

Steve Jones, Ph.D.  
Technical Director

BROWN AND CALDWELL



ANALYTICAL LABORATORIES

LOG NO: P85-09-42

Received: 26 SEP 8

Reported: 17 OCT 8

Rich Merrill  
IT Analytical Services  
17605 Fabrica Way, Suite D  
Cerritos, Ca 90701

Purchase Order: 1905

## REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, SOIL SAMPLES					DATE SAMPLED
09-425-1	#34496	202,S-2				
09-425-2	#34496	202,S-5				
09-425-3	#34496	204,S-1				
09-425-4	#34496	204,S-7				
09-425-5	#34496	206,S-2				
09-425-6	#34496	206,S-3				
PARAMETER	09-425-1	09-425-2	09-425-3	09-425-4	09-425-5	09-425-6
Total Organic Halides (TOX), mg/kg	<14	<14	<14	22	19	

LOG NO: P85-09-425

Received: 26 SEP 85

Reported: 17 OCT 85

Rich Merrill  
IT Analytical Services  
17605 Fabrica Way, Suite D  
Cerritos, Ca 90701

Purchase Order: 19051

# REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION. SOIL SAMPLES	DATE SAMPLE	
09-425-7	#34496 206,S-7		
09-425-8	#34496 303,S-3		
09-425-9	#35596 303,S-6		
PARAMETER	09-425-7	09-425-8	09-425-9
Total Organic Halides (TOX), mg/kg	23	17	<14

Edward Wilson, Laboratory Director

BROWN AND CALDWELL



ANALYTICAL LABORATORIES

LOG NO: P85-09-346

Received: 23 SEP 85

Reported: 14 OCT 85

OCT 22

Rich Merrill  
IT Analytical Services  
17605 Fabrica Way, Suite D  
Cerritos, Ca 90701

Purchase Order: 19038

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, SOIL SAMPLES	DATE SAMPLE				
09-348-1	#34439 205,S-2					
09-348-2	#34439 205,S-3					
09-348-3	#34439 205,S-7					
09-348-4	#34439 307,5-2					
09-348-5	#34439 307,5-8					
PARAMETER		09-348-1	09-348-2	09-348-3	09-348-4	09-348-5
Total Organic Halides (TOX), mg/kg		<17	<17	<17	<17	<17

Edward Wilson, Laboratory Director

BROWN AND CALDWELL



ANALYTICAL LABORATORIES

LOG NO: P85-09-21

Received: 16 SEP 8

Reported: 11 OCT 8

Rich Merrill  
IT Analytical Services  
17605 Fabrica Way, Suite D  
Cerritos, Ca 90701

Purchase Order: 1900

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, SOIL SAMPLES	DATE SAMPL
09-210-1	34360 301,5-8	
09-210-2	34360 302,5-2	
09-210-3	34360 302,5-8	
09-210-4	34360 308,5-2	
09-210-5	34360 308,5-8	
09-210-6	34407 201,5-9	
PARAMETER	09-210-1	09-210-2
	09-210-3	09-210-4
	09-210-5	09-210-6
Total Organic Halides (TOX), mg/kg	<15	22
	<15	<15
	<15	<15

OCT 15 1988

RECEIVED

BROWN AND CALDWELL



ANALYTICAL LABORATORIES

LOG NO: P85-09-23

Received: 17 SEP 8

Reported: 10 OCT 8

Rich Merrill  
IT Analytical Services  
17605 Fabrica Way, Suite D  
Cerritos, Ca 90701

Purchase Order: 1901

## REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION. SOIL SAMPLES	DATE SAMPLED
09-235-1	#34377 102.5-10	
09-235-2	#34377 201.5-2	
09-235-3	#34377 301.5-6	
09-235-4	#34377 309.5-2	
09-235-5	#34377 309.5-8	
09-235-6	#34377 401.5-4	
PARAMETER	09-235-1	09-235-2
	09-235-3	09-235-4
	09-235-5	09-235-6
Total Organic Halides (TOX), mg/kg	<15	17
	<15	17
	<15	

LOG NO: P85-09-23

Received: 17 SEP 8

Reported: 10 OCT 8

Rich Merrill  
IT Analytical Services  
17605 Fabrica Way, Suite D  
Cerritos, Ca 90701

Purchase Order: 1901

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION. SOIL SAMPLES	DATE SAMPLED		
09-235-7	#34377 401.5-8			
09-235-8	#34377 402.5-2			
09-235-9	#34377 402.5-7			
PARAMETER		09-235-7	09-235-8	09-235-9
Total Organic Halides (TOX), mg/kg		<15	29	<15

Edward Wilson, Laboratory Director

LOG NO: P85-09-2

Received: 16 SEP 8

Reported: 11 OCT 8

Rich Merrill  
IT Analytical Services  
17605 Fabrica Way, Suite D  
Cerritos, Ca 90701

Purchase Order: 1900

# REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, SOIL SAMPLES	DATE SAMPLED		
09-210-7	34407 203,5-2			
09-210-8	34407 203,5-3			
09-210-9	34407 203,5-18			
PARAMETER		09-210-7	09-210-8	09-210-9
Total Organic Halides (TOX), mg/kg		<15	<15	<15

Edward Wilson, Laboratory Director

OCT 13 1985  
IRVINE BRANCH

LOG NO: P85-09-108

Received: 09 SEP 85

Reported: 04 OCT 85

Jenny Hartman  
IT Analytical Services  
17605 Fabrica Way, Suite D  
Cerritos, Ca 90701

Purchase Order: 18888

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION , SOIL SAMPLES	DATE SAMPLED				
09-108-3	IT-34337 102, 5-2, 8.5-9.0'					
09-108-4	IT-34337 102, 5-3, 13.5-14.0'					
09-108-5	IT-34337 103, 5-1, 3.5-4.0'					
09-108-6	IT-34337 103, 5-3, 13.5-14.0'					
09-108-7	IT-34337 103, 5-17, 83.0-83.5'					
PARAMETER		09108-3	09108-4	09108-5	09108-6	09108-7
Total Organic Halides (TOX), mg/kg		<20	<20	26	<20	<20

LOG NO: P85-09-108

Received: 09 SEP 95

Reported: 04 OCT 95

Jenny Hartman  
IT Analytical Services  
17605 Fabrica Way, Suite D  
Cerritos, Ca 90701

Purchase Order: 18888

# REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION , SOIL SAMPLES	DATE SAMPLED				
09-108-8	IT-34350 102, 5-17, 83.5-84.0'					
09-108-9	IT-34350 304, 5-2, 8.5-9.0'					
09-108-10	IT-34350 304, 5-8, 38.5-39.0'					
09-108-11	IT-34350 305, 5-2, 8.5-9.0'					
09-108-12	IT-34350 305, 5-8, 38.5-39.0'					
PARAMETER		09108-8	09108-9	09108-10	09108-11	09108-12
Total Organic Halides (TOX), mg/kg	<20	<20	<20	<20	<20	<20

LOG NO: P85-09-108

Received: 00 SEP 85

Reported: 04 OCT 85

Jenny Hartman  
IT Analytical Services  
17605 Fabrica Way, Suite D  
Cerritos, Ca 90701

Purchase Order: 18888

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION , SOIL SAMPLES	DATE SAMPLED
09-108-13	IT-34350 306, 5-2, 8.5-9.0'	
09-108-14	IT-34350 306, 5-8, 38.5-39.0'	
PARAMETER	09108-13	09108-14
Total Organic Halides (TOX), mg/kg	<20	<20



IT CORPORATION

# IT ANALYTICAL SERVICES

17605 Fabrica Way • Cerritos, California 90701 • 213-921-9831 • 714-523-9200



## CERTIFICATE OF ANALYSIS

*When analyzed*

Prepared For IT Corporation - Powerline Oil Date October 10, 1985  
17500 Redhill Ave., Suite 100 IT CORP.  
Irvine, CA 92714  
Attn: Essi Esmaili  
OCT 16 1985

Analysis Date September 20, 1985 I.T. Number 850009/PC2521 Analyst 34496/rjc

Nine (9) soil samples.

The samples were analyzed for volatile organic contaminants using combined gas chromatography-mass spectrometry according to EPA Method 624, purge and trap. Results for compounds on the EPA Hazardous Substances List are given on the enclosed summary sheets.

The samples were analyzed by atomic absorption spectroscopy for the metals listed in Table I.

The samples were also analyzed for oil and grease, cyanides, and total organic halogen (TOX)\*. The results are listed in Table II.

The soil samples were extracted according to EPA Method 3550 and analyzed for various phenolic compounds according to EPA Method 8040. The results may be found in Table III.

*Matthew Hein*  
Matthew Hein  
Chemist

*David Blecha*  
David Blecha  
Asst. Lab. Manager

IT Corporation  
E. Esmaili

October 10, 1985  
JN: 34496 - Page 2

Table I

	<u>Milligrams/kilogram</u>		
	<u>202, S-2</u>	<u>202, S-5</u>	<u>204, S-1</u>
Arsenic	0.9	2	1
Cadmium	0.6	0.3	0.7
Chromium	12	12	16
Cobalt	11	7.0	16
Lead	10	5	11
Mercury	0.07	0.03	0.05
Molybdenum	ND<8	ND<8	ND<8
Nickel	18	12	23
Selenium	ND<0.2	ND<0.2	ND<0.2
Vanadium	30	30	60
Zinc	44	31	57

	<u>Milligrams/kilogram</u>		
	<u>204, S-7</u>	<u>206, S-2</u>	<u>206, S-3</u>
Arsenic	0.3	1	1
Cadmium	0.4	0.8	0.8
Chromium	7.5	16	11
Cobalt	4.7	13	10
Lead	5	9	9
Mercury	0.005	0.03	0.05
Molybdenum	ND<8	ND<8	ND<8
Nickel	8.2	21	17
Selenium	TR<0.2	ND<0.2	ND<0.2
Vanadium	20	40	30
Zinc	42	72	48

IT Corporation  
E. Esmaili

October 10, 1985  
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Table I (cont.)

	<u>Milligrams/kilogram</u>		
	<u>206, S-7</u>	<u>303, S-3</u>	<u>303, S-6</u>
Arsenic	2	2	2
Cadmium	0.5	0.8	0.4
Chromium	13	5.5	7.6
Cobalt	9.9	4.2	6.4
Lead	8	4	6
Mercury	0.08	0.03	0.02
Molybdenum	ND<8	ND<8	ND<8
Nickel	18	7.1	15
Selenium	ND<0.2	ND<0.2	ND<0.2
Vanadium	40	20	20
Zinc	43	19	30

Table II

	<u>Milligrams/kilogram</u>		
	<u>202, S-2</u>	<u>202, S-5</u>	<u>204, S-1</u>
Cyanides	ND<0.2	ND<0.2	ND<0.2
Oil and grease	ND<20	ND<20	ND<20
T.O.X.	*	*	*

\* - T.O.X. results will be reported at a later date.

ND - This compound was not detected; the limit of detection for this analysis is less than the amount stated in the table above.

IT Corporation  
E. Esmaili

October 10, 1985  
JN: 34496 - Page 4

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Table II

	<u>Milligrams/kilogram</u>		
	<u>204, S-7</u>	<u>206, S-2</u>	<u>206, S-3</u>
Cyanides	ND<0.2	ND<0.2	ND<0.2
Oil and grease	TR<20	TR<20	TR<20
T.O.X.	*	*	*

	<u>Milligrams/kilogram</u>		
	<u>206, S-7</u>	<u>303, S-3</u>	<u>303, S-6</u>
Cyanides	ND<0.2	ND<0.2	ND<0.2
Oil and grease	TR<20	ND<20	ND<20
T.O.X.	*	*	*

\* - T.O.X. results will be reported at a later date.

ND - This compound was not detected; the limit of detection for this analysis is less than the amount stated in the table above.

TR - Trace, this compound was present, but was below the level at which concentration could be determined.

Table III

Job #	Sample #	2-Chloro- phenol	2-Nitro- phenol	Phenols	2,4-Dimethyl phenol	2,4-Dichloro- phenol
		ppm (ug/g)				
34496	MB	ND<1	ND<1	ND<1	ND<1	ND<1
34496	202, S-2	ND<1	ND<1	ND<1	ND<1	ND<1
34496	202, S-5	ND<1	ND<1	ND<1	ND<1	ND<1
34496	204, S-1	ND<2*	ND<2*	ND<2*	ND<2*	ND<2*
34496	204, S-7	ND<1	ND<1	ND<1	ND<1	ND<1
34496	206, S-2	ND<1	ND<1	ND<1	ND<1	ND<1
34496	206, S-3	ND<1	ND<1	ND<1	ND<1	ND<1
34495	206, S-7	ND<1	ND<1	ND<1	ND<1	ND<1
34496	303, S-3	ND<1	ND<1	ND<1	ND<1	ND<1
34496	303, S-6	ND<1	ND<1	ND<1	ND<1	ND<1

Job #	Sample #	2,4,6- Trichloro- phenol	4-Chloro- 3-methyl- phenol	2,4- Dinitro phenol	2-Methyl- 4,6-dinitro- phenol	Pentachloro- phenol	4-Nitro- phenol
		ppm (ug/g)					
34496	MB	ND<1	ND<1	ND<20	ND<20	ND<10	ND<10
34496	202, S-2	ND<1	ND<1	ND<20	ND<20	ND<10	ND<10
34496	202, S-5	ND<1	ND<1	ND<20	ND<20	ND<10	ND<10
34496	204, S-1	ND<2*	ND<2*	ND<20	ND<20	ND<10	ND<10
34496	204, S-7	ND<1	ND<1	ND<20	ND<20	ND<10	ND<10
34496	206, S-2	ND<1	ND<1	ND<20	ND<20	ND<10	ND<10
34496	206, S-3	ND<1	ND<1	ND<20	ND<20	ND<10	ND<10
34495	206, S-7	ND<1	ND<1	ND<20	ND<20	ND<10	ND<10
34496	303, S-3	ND<1	ND<1	ND<20	ND<20	ND<10	ND<10
34496	303, S-6	ND<1	ND<1	ND<20	ND<20	ND<10	ND<10

\* - High detection limit due to matrix effect.

ND - This compound was not detected; the limit of detection for this analysis is less than the amount stated in the table above.

GC/MS ORGANICS ANALYSIS DATA SHEET  
VOLATILE COMPOUNDS

IT CORPORATION

SAMPLE IDENTIFICATION: 206, S-7, 68.5'-69.0'  
DATE ANALYZED: 10/01/85  
UNITS: UG/KG

CAS #	COMPOUND	CONC
=====	=====	=====
71-43-2	BENZENE	5. ND
56-23-5	CARBON TETRACHLORIDE	5. ND
108-90-7	CHLOROBENZENE	5. ND
107-06-2	1,2-DICHLOROETHANE	5. ND
71-55-6	1,1,1-TRICHLOROETHANE	5. ND
75-34-3	1,1-DICHLOROETHANE	5. ND
79-00-5	1,1,2-TRICHLOROETHANE	5. ND
79-34-5	1,1,2,2-TETRACHLOROETHANE	5. ND
75-00-3	CHLOROETHANE	5. ND
110-75-8	2-CHLOROETHYL VINYL ETHER	50. ND
67-66-3	CHLOROFORM	5. ND
75-35-4	1,1-DICHLOROETHENE	5. ND
156-60-5	TRANS-1,2-DICHLOROETHENE	5. ND
78-87-5	1,2-DICHLOROPROPANE	5. ND
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5. ND
10061-01-5	CIS-1,3-DICHLOROPROPENE	5. ND
100-41-4	ETHYLBENZENE	5. ND
75-09-2	METHYLENE CHLORIDE	5. ND
74-87-3	CHLOROMETHANE	5. ND
74-83-9	BROMOMETHANE	5. ND
75-25-2	BROMOFORM	5. ND
75-27-4	BROMODICHLOROMETHANE	5. ND
124-48-1	CHLORODIBROMOMETHANE	5. ND
127-18-4	TETRACHLOROETHENE	5. ND
108-88-3	TOLUENE	5. ND
79-01-6	TRICHLOROETHENE	5. ND
75-01-4	VINYL CHLORIDE	5. ND
67-64-1	ACETONE	50. ND
78-93-3	2-BUTANONE	50. ND
75-15-0	CARBON DISULFIDE	5. ND
519-78-6	2-HEXANONE	5. ND
108-10-1	4-METHYL-2-PENTANONE	5. ND
100-42-5	STYRENE	5. ND
108-05-4	VINYL ACETATE	5. ND
95-47-6	TOTAL XYLENES	5. ND
106-93-4	ETHYLENE DIBROMIDE	5. ND

ND - THIS COMPOUND WAS NOT DETECTED; THE LIMIT OF DETECTION FOR THIS COMPOUND IS STATED TO THE LEFT OF THE ND SPECIFIER.

TR - TRACE, THIS COMPOUND WAS PRESENT, BUT WAS BELOW THE LEVEL AT WHICH THE CONCENTRATION COULD ACCURATELY BE DETERMINED. THE APPROXIMATE CONCENTRATION IS REPORTED FOR YOUR REFERENCE.

GC/MS ORGANICS ANALYSIS DATA SHEET  
VOLATILE COMPOUNDS

IT CORPORATION

SAMPLE IDENTIFICATION: 202, S-5, 49.5'-50.0'  
DATE ANALYZED: 10/01/85  
UNITS: UG/KG

CAS #	COMPOUND	CONC
=====	=====	=====
71-43-2	BENZENE	5. ND
56-23-5	CARBON TETRACHLORIDE	5. ND
108-90-7	CHLOROBENZENE	5. ND
107-06-2	1,2-DICHLOROETHANE	5. ND
71-55-6	1,1,1-TRICHLOROETHANE	5. ND
75-34-3	1,1-DICHLOROETHANE	5. ND
79-00-5	1,1,2-TRICHLOROETHANE	5. ND
79-34-5	1,1,2,2-TETRACHLOROETHANE	5. ND
75-00-3	CHLOROETHANE	5. ND
110-75-8	2-CHLOROETHYL VINYL ETHER	50. ND
67-66-3	CHLOROFORM	5. ND
75-35-4	1,1-DICHLOROETHENE	5. ND
156-60-5	TRANS-1,2-DICHLOROETHENE	5. ND
78-87-5	1,2-DICHLOROPROPANE	5. ND
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5. ND
10061-01-5	CIS-1,3-DICHLOROPROPENE	5. ND
100-41-4	ETHYLBENZENE	5. ND
75-09-2	METHYLENE CHLORIDE	5. ND
74-87-3	CHLOROMETHANE	5. ND
74-83-9	BROMOMETHANE	5. ND
75-25-2	BROMOFORM	5. ND
75-27-4	BROMODICHLOROMETHANE	5. ND
124-48-1	CHLORODIBROMOMETHANE	5. ND
127-18-4	TETRACHLOROETHENE	5. ND
108-88-3	TOLUENE	5. ND
79-01-6	TRICHLOROETHENE	5. ND
75-01-4	VINYL CHLORIDE	5. ND
67-64-1	ACETONE	50. ND
78-93-3	2-BUTANONE	50. ND
75-15-0	CARBON DISULFIDE	5. ND
519-78-6	2-HEXANONE	5. ND
108-10-1	4-METHYL-2-PENTANONE	5. ND
100-42-5	STYRENE	5. ND
108-05-4	VINYL ACETATE	5. ND
95-47-6	TOTAL XYLENES	5. ND
106-93-4	ETHYLENE DIBROMIDE	5. ND

ND - THIS COMPOUND WAS NOT DETECTED; THE LIMIT OF DETECTION FOR THIS COMPOUND IS STATED TO THE LEFT OF THE ND SPECIFIER.

TR - TRACE, THIS COMPOUND WAS PRESENT, BUT WAS BELOW THE LEVEL AT WHICH THE CONCENTRATION COULD ACCURATELY BE DETERMINED. THE APPROXIMATE CONCENTRATION IS REPORTED FOR YOUR REFERENCE.

GC/MS ORGANICS ANALYSIS DATA SHEET  
VOLATILE COMPOUNDS

IT CORPORATION

SAMPLE IDENTIFICATION: 204, S-7, 68.5'-69.0'  
DATE ANALYZED: 10/01/85  
UNITS: UG/KG

CAS #	COMPOUND	CONC
=====	=====	=====
71-43-2	BENZENE	5. ND
56-23-5	CARBON TETRACHLORIDE	5. ND
108-90-7	CHLOROBENZENE	5. ND
107-06-2	1,2-DICHLOROETHANE	5. ND
71-55-6	1,1,1-TRICHLOROETHANE	5. ND
75-34-3	1,1-DICHLOROETHANE	5. ND
79-00-5	1,1,2-TRICHLOROETHANE	5. ND
79-34-5	1,1,2,2-TETRACHLOROETHANE	5. ND
75-00-3	CHLOROETHANE	5. ND
110-75-8	2-CHLOROETHYL VINYL ETHER	50. ND
67-66-3	CHLOROFORM	5. ND
75-35-4	1,1-DICHLOROETHENE	5. ND
156-60-5	TRANS-1,2-DICHLOROETHENE	5. ND
78-87-5	1,2-DICHLOROPROPANE	5. ND
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5. ND
10061-01-5	CIS-1,3-DICHLOROPROPENE	5. ND
100-41-4	ETHYLBENZENE	5. ND
75-09-2	METHYLENE CHLORIDE	5. ND
74-87-3	CHLOROMETHANE	5. ND
74-83-9	BROMOMETHANE	5. ND
75-25-2	BROMOFORM	5. ND
75-27-4	BROMODICHLOROMETHANE	5. ND
124-48-1	CHLORODIBROMOMETHANE	5. ND
127-18-4	TETRACHLOROETHENE	5. ND
108-88-3	TOLUENE	5. ND
79-01-6	TRICHLOROETHENE	5. ND
75-01-4	VINYL CHLORIDE	5. ND
67-64-1	ACETONE	50. ND
78-93-3	2-BUTANONE	50. ND
75-15-0	CARBON DISULFIDE	5. ND
519-78-6	2-HEXANONE	5. ND
108-10-1	4-METHYL-2-PENTANONE	5. ND
100-42-5	STYRENE	5. ND
108-05-4	VINYL ACETATE	5. ND
95-47-6	TOTAL XYLENES	5. ND
106-93-4	ETHYLENE DIBROMIDE	5. ND

ND - THIS COMPOUND WAS NOT DETECTED; THE LIMIT OF DETECTION FOR THIS COMPOUND IS STATED TO THE LEFT OF THE ND SPECIFIER.

TR - TRACE, THIS COMPOUND WAS PRESENT, BUT WAS BELOW THE LEVEL AT WHICH THE CONCENTRATION COULD ACCURATELY BE DETERMINED. THE APPROXIMATE CONCENTRATION IS REPORTED FOR YOUR REFERENCE.

GC/MS ORGANICS ANALYSIS DATA SHEET  
VOLATILE COMPOUNDS

IT CORPORATION

SAMPLE IDENTIFICATION: 202, S-2, 9.5'-10.0'  
DATE ANALYZED: 10/01/85  
UNITS: UG/KG

CAS #	COMPOUND	CONC
=====	=====	=====
71-43-2	BENZENE	5. ND
56-23-5	CARBON TETRACHLORIDE	5. ND
108-90-7	CHLOROBENZENE	5. ND
107-06-2	1,2-DICHLOROETHANE	5. ND
71-55-6	1,1,1-TRICHLOROETHANE	5. ND
75-34-3	1,1-DICHLOROETHANE	5. ND
79-00-5	1,1,2-TRICHLOROETHANE	5. ND
79-34-5	1,1,2,2-TETRACHLOROETHANE	5. ND
75-00-3	CHLOROETHANE	5. ND
110-75-8	2-CHLOROETHYL VINYL ETHER	50. ND
67-66-3	CHLOROFORM	5. ND
75-35-4	1,1-DICHLOROETHENE	5. ND
156-60-5	TRANS-1,2-DICHLOROETHENE	5. ND
78-87-5	1,2-DICHLOROPROPANE	5. ND
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5. ND
10061-01-5	CIS-1,3-DICHLOROPROPENE	5. ND
100-41-4	ETHYLBENZENE	5. ND
75-09-2	METHYLENE CHLORIDE	5. ND
74-87-3	CHLOROMETHANE	5. ND
74-83-9	BROMOMETHANE	5. ND
75-25-2	BROMOFORM	5. ND
75-27-4	BROMODICHLOROMETHANE	5. ND
124-48-1	CHLORODIBROMOMETHANE	5. ND
127-18-4	TETRACHLOROETHENE	5. ND
108-88-3	TOLUENE	5. ND
79-01-6	TRICHLOROETHENE	5. ND
75-01-4	VINYL CHLORIDE	5. ND
67-64-1	ACETONE	50. ND
78-93-3	2-BUTANONE	50. ND
75-15-0	CARBON DISULFIDE	5. ND
519-78-6	2-HEXANONE	5. ND
108-10-1	4-METHYL-2-PENTANONE	5. ND
100-42-5	STYRENE	5. ND
108-05-4	VINYL ACETATE	5. ND
95-47-6	TOTAL XYLENES	5. ND
106-93-4	ETHYLENE DIBROMIDE	5. ND

ND - THIS COMPOUND WAS NOT DETECTED; THE LIMIT OF DETECTION FOR THIS COMPOUND IS STATED TO THE LEFT OF THE ND SPECIFIER.

TR - TRACE, THIS COMPOUND WAS PRESENT, BUT WAS BELOW THE LEVEL AT WHICH THE CONCENTRATION COULD ACCURATELY BE DETERMINED. THE APPROXIMATE CONCENTRATION IS REPORTED FOR YOUR REFERENCE.

GC/MS ORGANICS ANALYSIS DATA SHEET  
VOLATILE COMPOUNDS

IT CORPORATION

SAMPLE IDENTIFICATION: 206, S-2, 8.5'-9.0'

DATE ANALYZED: 10/01/85

UNITS: UG/KG

CAS #	COMPOUND	CONC
=====	=====	=====
71-43-2	BENZENE	5. ND
56-23-5	CARBON TETRACHLORIDE	5. ND
108-90-7	CHLOROBENZENE	5. ND
107-06-2	1,2-DICHLOROETHANE	5. ND
71-55-6	1,1,1-TRICHLOROETHANE	5. ND
75-34-3	1,1-DICHLOROETHANE	5. ND
79-00-5	1,1,2-TRICHLOROETHANE	5. ND
79-34-5	1,1,2,2-TETRACHLOROETHANE	5. ND
75-00-3	CHLOROETHANE	5. ND
110-75-8	2-CHLOROETHYL VINYL ETHER	50. ND
67-66-3	CHLOROFORM	5. ND
75-35-4	1,1-DICHLOROETHENE	5. ND
156-60-5	TRANS-1,2-DICHLOROETHENE	5. ND
78-87-5	1,2-DICHLOROPROPANE	5. ND
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5. ND
10061-01-5	CIS-1,3-DICHLOROPROPENE	5. ND
100-41-4	ETHYLBENZENE	5. ND
75-09-2	METHYLENE CHLORIDE	5. ND
74-87-3	CHLOROMETHANE	5. ND
74-83-9	BROMOMETHANE	5. ND
75-25-2	BROMOFORM	5. ND
75-27-4	BROMODICHLOROMETHANE	5. ND
124-48-1	CHLORODIBROMOMETHANE	5. ND
127-18-4	TETRACHLOROETHENE	5. ND
108-88-3	TOLUENE	5. ND
79-01-6	TRICHLOROETHENE	5. ND
75-01-4	VINYL CHLORIDE	5. ND
67-64-1	ACETONE	50. ND
78-93-3	2-BUTANONE	50. ND
75-15-0	CARBON DISULFIDE	5. ND
519-78-6	2-HEXANONE	5. ND
108-10-1	4-METHYL-2-PENTANONE	5. ND
100-42-5	STYRENE	5. ND
108-05-4	VINYL ACETATE	5. ND
95-47-6	TOTAL XYLENES	5. ND
106-93-4	ETHYLENE DIBROMIDE	5. ND

ND - THIS COMPOUND WAS NOT DETECTED; THE LIMIT OF DETECTION FOR THIS COMPOUND IS STATED TO THE LEFT OF THE ND SPECIFIER.

TR - TRACE, THIS COMPOUND WAS PRESENT, BUT WAS BELOW THE LEVEL AT WHICH THE CONCENTRATION COULD ACCURATELY BE DETERMINED. THE APPROXIMATE CONCENTRATION IS REPORTED FOR YOUR REFERENCE.

GC/MS ORGANICS ANALYSIS DATA SHEET  
VOLATILE COMPOUNDS

IT CORPORATION

SAMPLE IDENTIFICATION: 303, S-6, 29'-29.5'  
DATE ANALYZED: 10/01/85  
UNITS: UG/KG

CAS #	COMPOUND	CONC
=====	=====	=====
71-43-2	BENZENE	5. ND
56-23-5	CARBON TETRACHLORIDE	5. ND
108-90-7	CHLOROBENZENE	5. ND
107-06-2	1,2-DICHLOROETHANE	5. ND
71-55-6	1,1,1-TRICHLOROETHANE	5. ND
75-34-3	1,1-DICHLOROETHANE	5. ND
79-00-5	1,1,2-TRICHLOROETHANE	5. ND
79-34-5	1,1,2,2-TETRACHLOROETHANE	5. ND
75-00-3	CHLOROETHANE	5. ND
110-75-8	2-CHLOROETHYL VINYL ETHER	50. ND
67-66-3	CHLOROFORM	5. ND
75-35-4	1,1-DICHLOROETHENE	5. ND
156-60-5	TRANS-1,2-DICHLOROETHENE	5. ND
78-87-5	1,2-DICHLOROPROPANE	5. ND
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5. ND
10061-01-5	CIS-1,3-DICHLOROPROPENE	5. ND
100-41-4	ETHYLBENZENE	5. ND
75-09-2	METHYLENE CHLORIDE	5. ND
74-87-3	CHLOROMETHANE	5. ND
74-83-9	BROMOMETHANE	5. ND
75-25-2	BROMOFORM	5. ND
75-27-4	BROMODICHLOROMETHANE	5. ND
124-48-1	CHLORODIBROMOMETHANE	5. ND
127-18-4	TETRACHLOROETHENE	5. ND
108-88-3	TOLUENE	5. ND
79-01-6	TRICHLOROETHENE	5. ND
75-01-4	VINYL CHLORIDE	5. ND
67-64-1	ACETONE	50. ND
78-93-3	2-BUTANONE	50. ND
75-15-0	CARBON DISULFIDE	5. ND
519-78-6	2-HEXANONE	5. ND
108-10-1	4-METHYL-2-PENTANONE	5. ND
100-42-5	STYRENE	5. ND
108-05-4	VINYL ACETATE	5. ND
95-47-6	TOTAL XYLENES	5. ND
106-93-4	ETHYLENE DIBROMIDE	5. ND

ND - THIS COMPOUND WAS NOT DETECTED; THE LIMIT OF DETECTION FOR THIS COMPOUND IS STATED TO THE LEFT OF THE ND SPECIFIER.

TR - TRACE. THIS COMPOUND WAS PRESENT, BUT WAS BELOW THE LEVEL AT WHICH THE CONCENTRATION COULD ACCURATELY BE DETERMINED. THE APPROXIMATE CONCENTRATION IS REPORTED FOR YOUR REFERENCE.

GC/MS ORGANICS ANALYSIS DATA SHEET  
VOLATILE COMPOUNDS

IT CORPORATION

SAMPLE IDENTIFICATION: 206, S-3, 13.5'-14.0'

DATE ANALYZED: 10/01/85

UNITS: UG/KG

CAS #	COMPOUND	CONC
=====	=====	=====
71-43-2	BENZENE	5. ND
56-23-5	CARBON TETRACHLORIDE	5. ND
108-90-7	CHLOROBENZENE	5. ND
107-06-2	1,2-DICHLOROETHANE	5. ND
71-55-6	1,1,1-TRICHLOROETHANE	5. ND
79-34-3	1,1-DICHLOROETHANE	5. ND
79-00-5	1,1,2-TRICHLOROETHANE	5. ND
79-34-5	1,1,2,2-TETRACHLOROETHANE	5. ND
75-00-3	CHLOROETHANE	5. ND
110-75-8	2-CHLOROETHYL VINYL ETHER	50. ND
67-66-3	CHLOROFORM	5. ND
75-35-4	1,1-DICHLOROETHENE	5. ND
156-60-5	TRANS-1,2-DICHLOROETHENE	5. ND
78-87-5	1,2-DICHLOROPROPANE	5. ND
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5. ND
10061-01-5	CIS-1,3-DICHLOROPROPENE	5. ND
100-41-4	ETHYLBENZENE	5. ND
75-09-2	METHYLENE CHLORIDE	5. ND
74-87-3	CHLOROMETHANE	5. ND
74-83-9	BROMOMETHANE	5. ND
75-25-2	BROMOFORM	5. ND
75-27-4	BROMODICHLOROMETHANE	5. ND
124-48-1	CHLORODIBROMOMETHANE	5. ND
127-18-4	TETRACHLOROETHENE	5. ND
108-88-3	TOLUENE	5. ND
79-01-6	TRICHLOROETHENE	5. ND
75-01-4	VINYL CHLORIDE	5. ND
67-64-1	ACETONE	50. ND
78-93-3	2-BUTANONE	50. ND
75-15-0	CARBON DISULFIDE	5. ND
519-78-6	2-HEXANONE	5. ND
108-10-1	4-METHYL-2-PENTANONE	5. ND
100-42-5	STYRENE	5. ND
108-05-4	VINYL ACETATE	5. ND
95-47-6	TOTAL XYLENES	5. ND
106-93-4	ETHYLENE DIBROMIDE	5. ND

ND - THIS COMPOUND WAS NOT DETECTED; THE LIMIT OF DETECTION FOR THIS COMPOUND IS STATED TO THE LEFT OF THE ND SPECIFIER.

TR - TRACE, THIS COMPOUND WAS PRESENT, BUT WAS BELOW THE LEVEL AT WHICH THE CONCENTRATION COULD ACCURATELY BE DETERMINED. THE APPROXIMATE CONCENTRATION IS REPORTED FOR YOUR REFERENCE.

GC/MS ORGANICS ANALYSIS DATA SHEET  
VOLATILE COMPOUNDS

IT CORPORATION

SAMPLE IDENTIFICATION: 303, S-3, 14'-14.5'  
DATE ANALYZED: 10/04/85  
UNITS: UG/KG

CAS #	COMPOUND	CONC
=====	=====	=====
71-43-2	BENZENE	5. ND
56-23-5	CARBON TETRACHLORIDE	5. ND
108-90-7	CHLOROBENZENE	5. ND
107-06-2	1,2-DICHLOROETHANE	5. ND
71-55-6	1,1,1-TRICHLOROETHANE	5. ND
75-34-3	1,1-DICHLOROETHANE	5. ND
79-00-5	1,1,2-TRICHLOROETHANE	5. ND
79-34-5	1,1,2,2-TETRACHLOROETHANE	5. ND
75-00-3	CHLOROETHANE	5. ND
110-75-8	2-CHLOROETHYL VINYL ETHER	50. ND
67-66-3	CHLOROFORM	5. ND
75-35-4	1,1-DICHLOROETHENE	5. ND
156-60-5	TRANS-1,2-DICHLOROETHENE	5. ND
78-87-5	1,2-DICHLOROPROPANE	5. ND
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5. ND
10061-01-5	CIS-1,3-DICHLOROPROPENE	5. ND
100-41-4	ETHYLBENZENE	5. ND
75-09-2	METHYLENE CHLORIDE	5. ND
74-87-3	CHLOROMETHANE	5. ND
74-83-9	BROMOMETHANE	5. ND
75-25-2	BROMOFORM	5. ND
75-27-4	BROMODICHLOROMETHANE	5. ND
124-48-1	CHLORODIBROMOMETHANE	5. ND
127-18-4	TETRACHLOROETHENE	5. ND
108-88-3	TOLUENE	5. ND
79-01-6	TRICHLOROETHENE	5. ND
75-01-4	VINYL CHLORIDE	5. ND
67-64-1	ACETONE	50. ND
78-93-3	2-BUTANONE	50. ND
75-15-0	CARBON DISULFIDE	5. ND
519-78-6	2-HEXANONE	5. ND
108-10-1	4-METHYL-2-PENTANONE	5. ND
100-42-5	STYRENE	5. ND
108-05-4	VINYL ACETATE	5. ND
95-47-6	TOTAL XYLENES	5. ND
106-93-4	ETHYLENE DIBROMIDE	5. ND

ND - THIS COMPOUND WAS NOT DETECTED; THE LIMIT OF DETECTION FOR THIS COMPOUND IS STATED TO THE LEFT OF THE ND SPECIFIER.

TR - TRACE, THIS COMPOUND WAS PRESENT, BUT WAS BELOW THE LEVEL AT WHICH THE CONCENTRATION COULD ACCURATELY BE DETERMINED. THE APPROXIMATE CONCENTRATION IS REPORTED FOR YOUR REFERENCE.

GC/MS ORGANICS ANALYSIS DATA SHEET  
VOLATILE COMPOUNDS

IT CORPORATION

SAMPLE IDENTIFICATION: 204, S-1, 4.5'-5.0'  
DATE ANALYZED: 10/04/85  
UNITS: UG/KG

CAS #	COMPOUND	CONC
=====	=====	=====
71-43-2	BENZENE	25. ND
56-23-5	CARBON TETRACHLORIDE	25. ND
108-90-7	CHLOROBENZENE	25. ND
107-06-2	1,2-DICHLOROETHANE	25. ND
71-55-6	1,1,1-TRICHLOROETHANE	25. ND
75-34-3	1,1-DICHLOROETHANE	25. ND
79-00-5	1,1,2-TRICHLOROETHANE	25. ND
79-34-5	1,1,2,2-TETRACHLOROETHANE	25. ND
75-00-3	CHLOROETHANE	25. ND
110-75-8	2-CHLOROETHYL VINYL ETHER	250. ND
67-66-3	CHLOROFORM	25. ND
75-35-4	1,1-DICHLOROETHENE	25. ND
156-60-5	TRANS-1,2-DICHLOROETHENE	25. ND
78-87-5	1,2-DICHLOROPROPANE	25. ND
10061-02-6	TRANS-1,3-DICHLOROPROPENE	25. ND
10061-01-5	CIS-1,3-DICHLOROPROPENE	25. ND
100-41-4	ETHYLBENZENE	320.
75-09-2	METHYLENE CHLORIDE	25. ND
74-87-3	CHLOROMETHANE	25. ND
74-83-9	BROMOMETHANE	25. ND
75-25-2	BROMOFORM	25. ND
75-27-4	BROMODICHLOROMETHANE	25. ND
124-48-1	CHLORODIBROMOMETHANE	25. ND
127-18-4	TETRACHLOROETHENE	25. ND
108-88-3	TOLUENE	320.
79-01-6	TRICHLOROETHENE	25. ND
75-01-4	VINYL CHLORIDE	25. ND
67-64-1	ACETONE	250. ND
78-93-3	2-BUTANONE	250. ND
75-15-0	CARBON DISULFIDE	25. ND
519-78-6	2-HEXANONE	25. ND
108-10-1	4-METHYL-2-PENTANONE	25. ND
100-42-5	STYRENE	25. ND
108-05-4	VINYL ACETATE	25. ND
95-47-6	TOTAL XYLENES	4400.
106-93-4	ETHYLENE DIBROMIDE	25. ND

ND - THIS COMPOUND WAS NOT DETECTED; THE LIMIT OF DETECTION FOR THIS COMPOUND IS STATED TO THE LEFT OF THE ND SPECIFIER.

TR - TRACE, THIS COMPOUND WAS PRESENT, BUT WAS BELOW THE LEVEL AT WHICH THE CONCENTRATION COULD ACCURATELY BE DETERMINED. THE APPROXIMATE CONCENTRATION IS REPORTED FOR YOUR REFERENCE.



IT CORPORATION

## IT ANALYTICAL SERVICES

17605 Fabrice Way • Cypress, California 90701 • 213-921-9831 • 714-523-3100

### CERTIFICATE OF ANALYSIS

Prepared For IT Corporation - Powerine Oil Date October 10, 1985  
17500 Redhill Ave., Suite 100  
Irvine, CA 92714

Attn: Essi Esmaili

September 16, 1985

850009

34439/rjc


Five (5) soil samples, from Powerine Oil Co.,  
Project #850009.


The samples were analyzed for volatile organic contaminants using combined gas chromatography-mass spectrometry according to EPA Method 624, purge and trap. Results for compounds on the EPA Hazardous Substances List are given on the enclosed summary sheets.

The samples were analyzed by atomic absorption spectroscopy for the metals listed in Table I.

The samples were also analyzed for oil and grease, cyanides, and total organic halogen (TOX)\*. The results are listed in Table II.

The soil samples were extracted according to EPA Method 3550 and analyzed for various phenolic compounds according to EPA Method 8040. The results may be found in Table III.

  
Judith A. Jones  
Analytical Chemist

  
Steve Jones, Ph.D.  
Technical Director

IT Corporation  
E. Esmaili

October 10, 1985  
JN: 34439 - Page 2

Table I

	<u>Milligrams/kilogram</u>		
	<u>205, S-2</u> <u>8.5-9.0</u>	<u>205, S-3</u> <u>14.0-14.5</u>	<u>205, S-7</u> <u>68.5-69.0</u>
Arsenic	0.8	2	6
Cadmium	0.5	0.6	0.3
Chromium	15	17	7.3
Cobalt	14	13	5.8
Lead	9	9	5
Mercury	0.05	0.03	0.03
Molybdenum	ND<8	ND<8	ND<8
Nickel	15	15	0.5
Selenium	ND<0.1	ND<0.1	ND<0.1
Vanadium	35	38	18
Zinc	51	47	26

	<u>Milligrams/kilogram</u>	
	<u>307, S-2</u> <u>8.5-9.0</u>	<u>307, S-8</u> <u>38.5-39.0</u>
Arsenic	2	0.7
Cadmium	0.6	0.6
Chromium	22	21
Cobalt	14	14
Lead	11	10
Mercury	0.04	0.06
Molybdenum	ND<8	ND<8
Nickel	20	19
Selenium	ND<0.1	ND<0.1
Vanadium	46	59
Zinc	52	59

ND - This compound was not detected; the limit of detection for this analysis is less than the amount stated in the table above.

IT Corporation  
E. Esmaili

October 31, 1985  
JN: 34439 - Page 3

Table II

	<u>Milligrams/kilogram</u>		
	<u>205, S-2</u>	<u>205, S-3</u>	<u>205, S-7</u>
	<u>8.5-9.0</u>	<u>14.0-14.5</u>	<u>68.5-6.9</u>
Cyanides	ND<0.2	ND<0.2	ND<0.2
Oil and grease	20	36	35
T.O.X.	*	*	*

	<u>Milligrams/kilogram</u>	
	<u>307, S-2</u>	<u>307, S-8</u>
	<u>8.5-9.0</u>	<u>38.5-39.0</u>
Cyanides	ND<0.2	1.4
Oil and grease	20	26
T.O.X.	*	*

\* - T.O.X. results will be reported at a later date.

ND - This compound was not detected; the limit of detection for this analysis is less than the amount stated in the table above.

Table III

<u>Job #</u>	<u>Sample #</u>	<u>2-Chloro-phenol</u>	<u>2-Nitro-phenol</u>	<u>Phenols</u>	<u>2,4-Dimethyl-phenol</u>	<u>2,4-Dichloro-phenol</u>
<u>ppm (ug/g)</u>						
	<u>Method</u>					
34439	Blank	ND<1	ND<1	ND<1	ND<1	ND<1
34439	205, S-2	ND<1	ND<1	ND<1	ND<1	ND<1
34439	205, S-7	ND<1	ND<1	ND<1	ND<1	ND<1
34439	307, S-2	ND<1	ND<1	ND<1	ND<1	ND<1
34439	307, S-8	ND<1	ND<1	ND<1	ND<1	ND<1
34439	205, S-3	ND<1	ND<1	ND<1	ND<1	ND<1

<u>Job #</u>	<u>Sample #</u>	<u>2,4,6-Trichloro-phenol</u>	<u>4-Chloro-3-methyl-phenol</u>	<u>2,4-Dinitro-phenol</u>	<u>2-Methyl-4,6-dinitro-phenol</u>	<u>Pentachloro-phenol</u>	<u>4-Nitro-phenol</u>
<u>ppm (ug/g)</u>							
	<u>Method</u>						
34439	Blank	ND<1	ND<1	ND<2	ND<2	ND<1	ND<1
34439	205, S-2	ND<1	ND<1	ND<2	ND<2	ND<1	ND<1
34439	205, S-7	ND<1	ND<1	ND<2	ND<2	ND<1	ND<1
34439	307, S-2	ND<1	ND<1	ND<2	ND<2	ND<1	ND<1
34439	307, S-8	ND<1	ND<1	ND<2	ND<2	ND<1	ND<1
34439	205, S-3	ND<1	ND<1	ND<2	ND<2	ND<1	ND<1

ND - This compound was not detected; the limit of detection for this analysis is less than the amount stated in the table above.

GC/MS ORGANICS ANALYSIS DATA SHEET  
VOLATILE COMPOUNDS

IT CORPORATION

SAMPLE IDENTIFICATION: 205, S-2, 8, 5-9, 0  
DATE ANALYZED: 09/25/85  
UNITS: UG/KG

CAS #	COMPOUND	CONC
=====	=====	=====
71-43-2	BENZENE	5. ND
56-23-5	CARBON TETRACHLORIDE	5. ND
108-90-7	CHLOROBENZENE	5. ND
107-06-2	1,2-DICHLOROETHANE	5. ND
71-55-6	1,1,1-TRICHLOROETHANE	5. ND
75-34-3	1,1-DICHLOROETHANE	5. ND
79-00-5	1,1,2-TRICHLOROETHANE	5. ND
79-34-5	1,1,2,2-TETRACHLOROETHANE	5. ND
75-00-3	CHLOROETHANE	5. ND
110-75-8	2-CHLOROETHYL VINYL ETHER	50. ND
67-66-3	CHLOROFORM	5. ND
75-35-4	1,1-DICHLOROETHENE	5. ND
156-60-5	TRANS-1,2-DICHLOROETHENE	5. ND
78-87-5	1,2-DICHLOROPROPANE	5. ND
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5. ND
10061-01-5	CIS-1,3-DICHLOROPROPENE	5. ND
100-41-4	ETHYLBENZENE	5. ND
75-09-2	METHYLENE CHLORIDE	5. ND
74-87-3	CHLOROMETHANE	5. ND
74-83-9	BROMOMETHANE	5. ND
75-25-2	BROMOFORM	5. ND
75-27-4	BROMODICHLOROMETHANE	5. ND
124-48-1	CHLORODIBROMOMETHANE	5. ND
127-18-4	TETRACHLOROETHENE	5. ND
108-88-3	TOLUENE	5. ND
79-01-6	TRICHLOROETHENE	5. ND
75-01-4	VINYL CHLORIDE	5. ND
67-64-1	ACETONE	50. ND
78-93-3	2-BUTANONE	50. ND
75-15-0	CARBON DISULFIDE	5. ND
519-78-6	2-HEXANONE	5. ND
108-10-1	4-METHYL-2-PENTANONE	5. ND
100-42-5	STYRENE	5. ND
108-05-4	VINYL ACETATE	5. ND
95-47-6	TOTAL XYLENES	5. ND
106-93-4	ETHYLENE DIBROMIDE	5. ND

ND - THIS COMPOUND WAS NOT DETECTED; THE LIMIT OF DETECTION FOR THIS COMPOUND IS STATED TO THE LEFT OF THE ND SPECIFIER.

TR - TRACE, THIS COMPOUND WAS PRESENT, BUT WAS BELOW THE LEVEL AT WHICH THE CONCENTRATION COULD ACCURATELY BE DETERMINED. THE APPROXIMATE CONCENTRATION IS REPORTED FOR YOUR REFERENCE.

GC/MS    ORGANICS ANALYSIS DATA SHEET  
VOLATILE COMPOUNDS

IT CORPORATION

SAMPLE IDENTIFICATION: 205, S-3, 14. 0-14. 5  
DATE ANALYZED: 09/25/85  
UNITS: UG/KG

CAS. #	COMPOUND	CONC
=====	=====	=====
71-43-2	BENZENE	5. ND
56-23-5	CARBON TETRACHLORIDE	5. ND
108-90-7	CHLOROBENZENE	5. ND
107-06-2	1, 2-DICHLOROETHANE	5. ND
71-55-6	1, 1, 1-TRICHLOROETHANE	5. ND
75-34-3	1, 1-DICHLOROETHANE	5. ND
79-00-5	1, 1, 2-TRICHLOROETHANE	5. ND
79-34-5	1, 1, 2, 2-TETRACHLOROETHANE	5. ND
75-00-3	CHLOROETHANE	5. ND
110-75-8	2-CHLOROETHYL VINYL ETHER	50. ND
67-66-3	CHLOROFORM	5. ND
75-35-4	1, 1-DICHLOROETHENE	5. ND
156-60-5	TRANS-1, 2-DICHLOROETHENE	5. ND
78-87-5	1, 2-DICHLOROPROPANE	5. ND
10061-02-6	TRANS-1, 3-DICHLOROPROPENE	5. ND
10061-01-5	CIS-1, 3-DICHLOROPROPENE	5. ND
100-41-4	ETHYLBENZENE	5. ND
75-09-2	METHYLENE CHLORIDE	5. ND
74-87-3	CHLOROMETHANE	5. ND
74-83-9	BROMOMETHANE	5. ND
75-25-2	BROMOFORM	5. ND
75-27-4	BROMODICHLOROMETHANE	5. ND
124-48-1	CHLORODIBROMOMETHANE	5. ND
127-18-4	TETRACHLOROETHENE	5. ND
108-88-3	TOLUENE	5. ND
79-01-6	TRICHLOROETHENE	5. ND
75-01-4	VINYL CHLORIDE	5. ND
67-64-1	ACETONE	50. ND
78-93-3	2-BUTANONE	50. ND
75-15-0	CARBON DISULFIDE	5. ND
519-78-6	2-HEXANONE	5. ND
108-10-1	4-METHYL-2-PENTANONE	5. ND
100-42-5	STYRENE	5. ND
108-05-4	VINYL ACETATE	5. ND
95-47-6	TOTAL XYLENES	5. ND
106-93-4	ETHYLENE DIBROMIDE	5. ND

ND - THIS COMPOUND WAS NOT DETECTED; THE LIMIT OF DETECTION FOR THIS COMPOUND IS STATED TO THE LEFT OF THE ND SPECIFIER

TR - TRACE, THIS COMPOUND WAS PRESENT, BUT WAS BELOW THE LEVEL AT WHICH THE CONCENTRATION COULD ACCURATELY BE DETERMINED THE APPROXIMATE CONCENTRATION IS REPORTED FOR YOUR REFERENCE.

GC/MS ORGANICS ANALYSIS DATA SHEET  
VOLATILE COMPOUNDS

IT CORPORATION

SAMPLE IDENTIFICATION: 205, S-7, 68, 5-69, 0  
DATE ANALYZED: 09/25/85  
UNITS: UG/KG

CAS #	COMPOUND	CONC
=====	=====	=====
71-43-2	BENZENE	5. ND
56-23-5	CARBON TETRACHLORIDE	5. ND
108-90-7	CHLOROBENZENE	5. ND
107-06-2	1,2-DICHLOROETHANE	5. ND
71-55-6	1,1,1-TRICHLOROETHANE	5. ND
75-34-3	1,1-DICHLOROETHANE	5. ND
79-00-5	1,1,2-TRICHLOROETHANE	5. ND
79-34-5	1,1,2,2-TETRACHLOROETHANE	5. ND
75-00-3	CHLOROETHANE	5. ND
110-75-8	2-CHLOROETHYL VINYL ETHER	50. ND
67-66-3	CHLOROFORM	5. ND
75-35-4	1,1-DICHLOROETHENE	5. ND
156-60-5	TRANS-1,2-DICHLOROETHENE	5. ND
78-87-5	1,2-DICHLOROPROPANE	5. ND
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5. ND
10061-01-5	CIS-1,3-DICHLOROPROPENE	5. ND
100-41-4	ETHYLBENZENE	5. ND
75-09-2	METHYLENE CHLORIDE	5. ND
74-87-3	CHLOROMETHANE	5. ND
74-83-9	BROMOMETHANE	5. ND
75-25-2	BROMOFORM	5. ND
75-27-4	BROMODICHLOROMETHANE	5. ND
124-48-1	CHLORODIBROMOMETHANE	5. ND
127-18-4	TETRACHLOROETHENE	5. ND
108-88-3	TOLUENE	5. ND
79-01-6	TRICHLOROETHENE	5. ND
75-01-4	VINYL CHLORIDE	5. ND
67-64-1	ACETONE	50. ND
78-93-3	2-BUTANONE	50. ND
75-15-0	CARBON DISULFIDE	5. ND
519-78-6	2-HEXANONE	5. ND
108-10-1	4-METHYL-2-PENTANONE	5. ND
100-42-5	STYRENE	5. ND
108-05-4	VINYL ACETATE	5. ND
95-47-6	TOTAL XYLENES	5. ND
106-93-4	ETHYLENE DIBROMIDE	5. ND

ND - THIS COMPOUND WAS NOT DETECTED; THE LIMIT OF DETECTION FOR THIS COMPOUND IS STATED TO THE LEFT OF THE ND SPECIFIER

TR - TRACE, THIS COMPOUND WAS PRESENT, BUT WAS BELOW THE LEVEL AT WHICH THE CONCENTRATION COULD ACCURATELY BE DETERMINED. THE APPROXIMATE CONCENTRATION IS REPORTED FOR YOUR REFERENCE.

GC/MS ORGANICS ANALYSIS DATA SHEET  
VOLATILE COMPOUNDS

IT CORPORATION

SAMPLE IDENTIFICATION: 307, S-2, 8.5-9.0  
DATE ANALYZED: 09/25/85  
UNITS: UG/KG

CAS #	COMPOUND	CONC
=====	=====	=====
71-43-2	BENZENE	5. ND
56-23-5	CARBON TETRACHLORIDE	5. ND
108-90-7	CHLOROBENZENE	5. ND
107-06-2	1,2-DICHLOROETHANE	5. ND
71-55-6	1,1,1-TRICHLOROETHANE	5. ND
75-34-3	1,1-DICHLOROETHANE	5. ND
79-00-5	1,1,2-TRICHLOROETHANE	5. ND
79-34-5	1,1,2,2-TETRACHLOROETHANE	5. ND
75-00-3	CHLOROETHANE	5. ND
110-75-8	2-CHLOROETHYL VINYL ETHER	50. ND
67-66-3	CHLOROFORM	5. ND
75-35-4	1,1-DICHLOROETHENE	5. ND
156-60-5	TRANS-1,2-DICHLOROETHENE	5. ND
78-87-5	1,2-DICHLOROPROPANE	5. ND
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5. ND
10061-01-5	CIS-1,3-DICHLOROPROPENE	5. ND
100-41-4	ETHYLBENZENE	5. ND
75-09-2	METHYLENE CHLORIDE	5. ND
74-87-3	CHLOROMETHANE	5. ND
74-83-9	BROMOMETHANE	5. ND
75-25-2	BROMOFORM	5. ND
75-27-4	BROMODICHLOROMETHANE	5. ND
124-48-1	CHLORODIBROMOMETHANE	5. ND
127-18-4	TETRACHLOROETHENE	5. ND
108-88-3	TOLUENE	5. ND
79-01-6	TRICHLOROETHENE	5. ND
75-01-4	VINYL CHLORIDE	5. ND
67-64-1	ACETONE	50. ND
78-93-3	2-BUTANONE	50. ND
75-15-0	CARBON DISULFIDE	5. ND
519-78-6	2-HEXANONE	5. ND
108-10-1	4-METHYL-2-PENTANONE	5. ND
100-42-5	STYRENE	5. ND
108-05-4	VINYL ACETATE	5. ND
95-47-6	TOTAL XYLENES	5. ND
106-93-4	ETHYLENE DIBROMIDE	5. ND

ND - THIS COMPOUND WAS NOT DETECTED. THE LIMIT OF DETECTION FOR THIS COMPOUND IS STATED TO THE LEFT OF THE ND SPECIFIER

TR - TRACE, THIS COMPOUND WAS PRESENT, BUT WAS BELOW THE LEVEL AT WHICH THE CONCENTRATION COULD ACCURATELY BE DETERMINED THE APPROXIMATE CONCENTRATION IS REPORTED FOR YOUR REFERENCE.

GC/MS ORGANICS ANALYSIS DATA SHEET  
VOLATILE COMPOUNDS

IT CORPORATION

SAMPLE IDENTIFICATION: 102, S-6, 28, S-29, 0  
DATE ANALYZED: 09/18/85  
UNITS: UG/KG

CAS #	COMPOUND	CONC
=====	=====	=====
71-43-2	BENZENE	63. ND
56-23-5	CARBON TETRACHLORIDE	63. ND
108-90-7	CHLOROBENZENE	63. ND
107-06-2	1,2-DICHLOROETHANE	63. ND
71-55-6	1,1,1-TRICHLOROETHANE	63. ND
75-34-3	1,1-DICHLOROETHANE	63. ND
79-00-5	1,1,2-TRICHLOROETHANE	63. ND
79-34-5	1,1,2,2-TETRACHLOROETHANE	63. ND
75-00-3	CHLOROETHANE	63. ND
110-75-8	2-CHLOROETHYL VINYL ETHER	630. ND
67-66-3	CHLOROFORM	63. ND
75-35-4	1,1-DICHLOROETHENE	63. ND
156-60-5	TRANS-1,2-DICHLOROETHENE	63. ND
78-87-5	1,2-DICHLOROPROPANE	63. ND
10061-02-6	TRANS-1,3-DICHLOROPROPENE	63. ND
10061-01-5	CIS-1,3-DICHLOROPROPENE	63. ND
100-41-4	ETHYLBENZENE	1500.
75-09-2	METHYLENE CHLORIDE	63. ND
74-87-3	CHLOROMETHANE	63. ND
74-83-9	BROMOMETHANE	63. ND
75-25-2	BROMOFORM	63. ND
75-27-4	BROMODICHLOROMETHANE	63. ND
124-48-1	CHLORODIBROMOMETHANE	63. ND
127-18-4	TETRACHLOROETHENE	63. ND
108-88-3	TOLUENE	430. TR
79-01-6	TRICHLOROETHENE	63. ND
75-01-4	VINYL CHLORIDE	63. ND
67-64-1	ACETONE	630 ND
78-93-3	2-BUTANONE	ND
75-15-0	CARBON DISULFIDE	63. ND
519-78-6	2-HEXANONE	63. ND
108-10-1	4-METHYL-2-PENTANONE	63. ND
100-42-5	STYRENE	63. ND
108-05-4	VINYL ACETATE	63 ND
95-47-6	TOTAL XYLENES	4100.
106-93-4	ETHYLENE DIBROMIDE	63. ND

ND - THIS COMPOUND WAS NOT DETECTED; THE LIMIT OF DETECTION FOR THIS COMPOUND IS STATED TO THE LEFT OF THE ND SPECIFIER.

TR - TRACE, THIS COMPOUND WAS PRESENT, BUT WAS BELOW THE LEVEL AT WHICH THE CONCENTRATION COULD ACCURATELY BE DETERMINED. THE APPROXIMATE CONCENTRATION IS REPORTED FOR YOUR REFERENCE.

SAMPLE IDENTIFICATION: 102, S-9, 43, 5-440  
DATE ANALYZED: 09/18/85  
UNITS: UG/KG

CAS #	COMPOUND	CONC
=====	=====	=====
71-43-2	BENZENE	5. ND
56-23-5	CARBON TETRACHLORIDE	5. ND
108-90-7	CHLOROBENZENE	5. ND
107-06-2	1,2-DICHLOROETHANE	5. ND
71-55-6	1,1,1-TRICHLOROETHANE	5. ND
75-34-3	1,1-DICHLOROETHANE	5. ND
79-00-5	1,1,2-TRICHLOROETHANE	5. ND
79-34-5	1,1,2,2-TETRACHLOROETHANE	5. ND
75-00-3	CHLOROETHANE	5. ND
110-75-8	2-CHLOROETHYL VINYL ETHER	50. ND
67-66-3	CHLOROFORM	5. ND
75-35-4	1,1-DICHLOROETHENE	5. ND
156-60-5	TRANS-1,2-DICHLOROETHENE	5. ND
78-87-5	1,2-DICHLOROPROPANE	5. ND
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5. ND
10061-01-5	CIS-1,3-DICHLOROPROPENE	5. ND
100-41-4	ETHYLBENZENE	5. ND
75-09-2	METHYLENE CHLORIDE	5. ND
74-87-3	CHLOROMETHANE	5. ND
74-83-9	BROMOMETHANE	5. ND
75-25-2	BROMOFORM	5. ND
75-27-4	BROMODICHLOROMETHANE	5. ND
124-48-1	CHLORODIBROMOMETHANE	5. ND
127-18-4	TETRACHLOROETHENE	5. ND
108-88-3	TOLUENE	5. ND
79-01-6	TRICHLOROETHENE	5. ND
75-01-4	VINYL CHLORIDE	5. ND
67-64-1	ACETONE	50. ND
78-93-3	2-BUTANONE	50. ND
75-15-0	CARBON DISULFIDE	5. ND
519-78-6	2-HEXANONE	5. ND
108-10-1	4-METHYL-2-PENTANONE	5. ND
100-42-5	STYRENE	5. ND
108-05-4	VINYL ACETATE	5. ND
95-47-6	TOTAL XYLENES	12. TR
106-93-4	ETHYLENE DIBROMIDE	5. ND

ND - THIS COMPOUND WAS NOT DETECTED; THE LIMIT OF DETECTION FOR THIS COMPOUND IS STATED TO THE LEFT OF THE ND SPECIFIER.

TR - TRACE, THIS COMPOUND WAS PRESENT, BUT WAS BELOW THE LEVEL AT WHICH THE CONCENTRATION COULD ACCURATELY BE DETERMINED. THE APPROXIMATE CONCENTRATION IS REPORTED FOR YOUR REFERENCE.

SAMPLE IDENTIFICATION: 102, S-12, 58.5-59.0  
DATE ANALYZED: 09/16/85  
UNITS: UG/KG

CAS #	COMPOUND	CONC
=====	=====	=====
71-43-2	BENZENE	5. ND
56-23-5	CARBON TETRACHLORIDE	5. ND
108-90-7	CHLOROBENZENE	5. ND
107-06-2	1,2-DICHLOROETHANE	5. ND
71-55-6	1,1,1-TRICHLOROETHANE	5. ND
75-34-3	1,1-DICHLOROETHANE	5. ND
79-00-5	1,1,2-TRICHLOROETHANE	5. ND
79-34-5	1,1,2,2-TETRACHLOROETHANE	5. ND
75-00-3	CHLOROETHANE	5. ND
110-75-8	2-CHLOROETHYL VINYL ETHER	50. ND
67-66-3	CHLOROFORM	5. ND
75-35-4	1,1-DICHLOROETHENE	5. ND
156-60-5	TRANS-1,2-DICHLOROETHENE	5. ND
78-87-5	1,2-DICHLOROPROPANE	5. ND
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5. ND
10061-01-5	CIS-1,3-DICHLOROPROPENE	5. ND
100-41-4	ETHYLBENZENE	5. ND
75-09-2	METHYLENE CHLORIDE	5. ND
74-87-3	CHLOROMETHANE	5. ND
74-83-9	BROMOMETHANE	5. ND
75-25-2	BROMOFORM	5. ND
75-27-4	BROMODICHLOROMETHANE	5. ND
124-48-1	CHLORODIBROMOMETHANE	5. ND
127-18-4	TETRACHLOROETHENE	5. ND
108-88-3	TOLUENE	5. ND
79-01-6	TRICHLOROETHENE	5. ND
75-01-4	VINYL CHLORIDE	5. ND
67-64-1	ACETONE	50. ND
78-93-3	2-BUTANONE	50. ND
75-15-0	CARBON DISULFIDE	5. ND
519-78-6	2-HEXANONE	5. ND
108-10-1	4-METHYL-2-PENTANONE	5. ND
100-42-5	STYRENE	5. ND
108-05-4	VINYL ACETATE	5. ND
95-47-6	TOTAL XYLENES	5. ND
106-93-4	ETHYLENE DIBROMIDE	5. ND

ND - THIS COMPOUND WAS NOT DETECTED; THE LIMIT OF DETECTION FOR THIS COMPOUND IS STATED TO THE LEFT OF THE ND SPECIFIER.

TR - TRACE, THIS COMPOUND WAS PRESENT, BUT WAS BELOW THE LEVEL AT WHICH THE CONCENTRATION COULD ACCURATELY BE DETERMINED. THE APPROXIMATE CONCENTRATION IS REPORTED FOR YOUR REFERENCE.

SAMPLE IDENTIFICATION: 102, S-15, 73, 5-74, 0  
DATE ANALYZED: 09/18/85  
UNITS: UG/KG

CAS #	COMPOUND	CONC
=====	=====	=====
71-43-2	BENZENE	5. ND
56-23-5	CARBON TETRACHLORIDE	5. ND
108-90-7	CHLOROBENZENE	5. ND
107-06-2	1,2-DICHLOROETHANE	5. ND
71-55-6	1,1,1-TRICHLOROETHANE	5. ND
75-34-3	1,1-DICHLOROETHANE	5. ND
79-00-5	1,1,2-TRICHLOROETHANE	5. ND
79-34-5	1,1,2,2-TETRACHLOROETHANE	5. ND
75-00-3	CHLOROETHANE	5. ND
110-75-8	2-CHLOROETHYL VINYL ETHER	50. ND
67-66-3	CHLOROFORM	5. ND
75-35-4	1,1-DICHLOROETHENE	5. ND
156-60-5	TRANS-1,2-DICHLOROETHENE	5. ND
78-87-5	1,2-DICHLOROPROPANE	5. ND
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5. ND
10061-01-5	CIS-1,3-DICHLOROPROPENE	5. ND
100-41-4	ETHYLBENZENE	5. ND
75-09-2	METHYLENE CHLORIDE	230.
74-87-3	CHLOROMETHANE	5. ND
74-83-9	BROMOMETHANE	5. ND
75-25-2	BROMOFORM	5. ND
75-27-4	BROMODICHLOROMETHANE	5. ND
124-48-1	CHLORODIBROMOMETHANE	5. ND
127-18-4	TETRACHLOROETHENE	5. ND
108-88-3	TOLUENE	5. ND
79-01-6	TRICHLOROETHENE	5. ND
75-01-4	VINYL CHLORIDE	5. ND
67-64-1	ACETONE	50. ND
78-93-3	2-BUTANONE	70. TR
75-15-0	CARBON DISULFIDE	5. ND
519-78-6	2-HEXANONE	5. ND
108-10-1	4-METHYL-2-PENTANONE	5. ND
100-42-5	STYRENE	5. ND
108-05-4	VINYL ACETATE	5. ND
95-47-6	TOTAL XYLENES	5. ND
106-93-4	ETHYLENE DIBROMIDE	5. ND

ND - THIS COMPOUND WAS NOT DETECTED; THE LIMIT OF DETECTION FOR THIS COMPOUND IS STATED TO THE LEFT OF THE ND SPECIFIER.

TR - TRACE, THIS COMPOUND WAS PRESENT, BUT WAS BELOW THE LEVEL AT WHICH THE CONCENTRATION COULD ACCURATELY BE DETERMINED. THE APPROXIMATE CONCENTRATION IS REPORTED FOR YOUR REFERENCE.

SAMPLE IDENTIFICATION: 102, S-18, 88.5-89.0  
DATE ANALYZED: 09/18/85  
UNITS: UG/KG

CAS #	COMPOUND	CONC
=====	=====	=====
71-43-2	BENZENE	5. ND
56-23-5	CARBON TETRACHLORIDE	5. ND
108-90-7	CHLOROBENZENE	5. ND
107-06-2	1,2-DICHLOROETHANE	5. ND
71-55-6	1,1,1-TRICHLOROETHANE	5. ND
75-34-3	1,1-DICHLOROETHANE	5. ND
79-00-5	1,1,2-TRICHLOROETHANE	5. ND
79-34-5	1,1,2,2-TETRACHLOROETHANE	5. ND
75-00-3	CHLOROETHANE	5. ND
110-75-8	2-CHLOROETHYL VINYL ETHER	50. ND
67-66-3	CHLOROFORM	5. ND
75-35-4	1,1-DICHLOROETHENE	5. ND
156-60-5	TRANS-1,2-DICHLOROETHENE	5. ND
78-87-5	1,2-DICHLOROPROPANE	5. ND
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5. ND
10061-01-5	CIS-1,3-DICHLOROPROPENE	5. ND
100-41-4	ETHYLBENZENE	5. ND
75-09-2	METHYLENE CHLORIDE	5. ND
74-87-3	CHLOROMETHANE	5. ND
74-83-9	BROMOMETHANE	5. ND
75-25-2	BROMOFORM	5. ND
75-27-4	BROMODICHLOROMETHANE	5. ND
124-48-1	CHLORODIBROMOMETHANE	5. ND
127-18-4	TETRACHLOROETHENE	5. ND
108-88-3	TOLUENE	5. ND
79-01-6	TRICHLOROETHENE	5. ND
75-01-4	VINYL CHLORIDE	5. ND
67-64-1	ACETONE	50. ND
78-93-3	2-BUTANONE	50. ND
75-15-0	CARBON DISULFIDE	5. ND
519-78-6	2-HEXANONE	5. ND
108-10-1	4-METHYL-2-PENTANONE	5. ND
100-42-5	STYRENE	5. ND
108-05-4	VINYL ACETATE	5. ND
95-47-6	TOTAL XYLENES	5. ND
106-93-4	ETHYLENE DIBROMIDE	5. ND

ND - THIS COMPOUND WAS NOT DETECTED; THE LIMIT OF DETECTION FOR THIS COMPOUND IS STATED TO THE LEFT OF THE ND SPECIFIER.

TR - TRACE, THIS COMPOUND WAS PRESENT, BUT WAS BELOW THE LEVEL AT WHICH THE CONCENTRATION COULD ACCURATELY BE DETERMINED. THE APPROXIMATE CONCENTRATION IS REPORTED FOR YOUR REFERENCE.

SAMPLE IDENTIFICATION: 201, S-9, 83, 5-84, 0  
DATE ANALYZED: 09/16/85  
UNITS: UG/KG

CAS #	COMPOUND	CONC
=====	=====	=====
71-43-2	BENZENE	5. ND
56-23-5	CARBON TETRACHLORIDE	5. ND
108-90-7	CHLOROBENZENE	5. ND
107-06-2	1,2-DICHLOROETHANE	5. ND
71-55-6	1,1,1-TRICHLOROETHANE	5. ND
75-34-3	1,1-DICHLOROETHANE	5. ND
79-00-5	1,1,2-TRICHLOROETHANE	5. ND
79-34-5	1,1,2,2-TETRACHLOROETHANE	5. ND
75-00-3	CHLOROETHANE	5. ND
110-75-8	2-CHLOROETHYL VINYL ETHER	50. ND
67-66-3	CHLOROFORM	5. ND
75-35-4	1,1-DICHLOROETHENE	5. ND
156-60-5	TRANS-1,2-DICHLOROETHENE	5. ND
78-87-5	1,2-DICHLOROPROPANE	5. ND
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5. ND
10061-01-5	CIS-1,3-DICHLOROPROPENE	5. ND
100-41-4	ETHYLBENZENE	5. ND
75-09-2	METHYLENE CHLORIDE	5. ND
74-87-3	CHLOROMETHANE	5. ND
74-83-9	BROMOMETHANE	5. ND
75-25-2	BROMOFORM	5. ND
75-27-4	BROMODICHLOROMETHANE	5. ND
124-48-1	CHLORODIBROMOMETHANE	5. ND
127-18-4	TETRACHLOROETHENE	5. ND
108-88-3	TOLUENE	5. ND
79-01-6	TRICHLOROETHENE	5. ND
75-01-4	VINYL CHLORIDE	5. ND
67-64-1	ACETONE	50. ND
78-93-3	2-BUTANONE	50. ND
75-15-0	CARBON DISULFIDE	5. ND
519-78-6	2-HEXANONE	5. ND
108-10-1	4-METHYL-2-PENTANONE	5. ND
100-42-5	STYRENE	5. ND
108-05-4	VINYL ACETATE	5. ND
95-47-6	TOTAL XYLENES	5. ND
106-93-4	ETHYLENE DIBROMIDE	5. ND

ND - THIS COMPOUND WAS NOT DETECTED; THE LIMIT OF DETECTION FOR THIS COMPOUND IS STATED TO THE LEFT OF THE ND SPECIFIER.

TR - TRACE, THIS COMPOUND WAS PRESENT, BUT WAS BELOW THE LEVEL AT WHICH THE CONCENTRATION COULD ACCURATELY BE DETERMINED. THE APPROXIMATE CONCENTRATION IS REPORTED FOR YOUR REFERENCE.

SAMPLE IDENTIFICATION: 203, S-2, 8.5-9.0  
DATE ANALYZED: 09/16/85  
UNITS: UG/KG

CAS #	COMPOUND	CONC
=====	=====	=====
71-43-2	BENZENE	5. ND
56-23-5	CARBON TETRACHLORIDE	5. ND
108-90-7	CHLOROBENZENE	5. ND
107-06-2	1,2-DICHLOROETHANE	5. ND
71-55-6	1,1,1-TRICHLOROETHANE	5. ND
75-34-3	1,1-DICHLOROETHANE	5. ND
79-00-5	1,1,2-TRICHLOROETHANE	5. ND
79-34-5	1,1,2,2-TETRACHLOROETHANE	5. ND
75-00-3	CHLOROETHANE	5. ND
110-75-8	2-CHLOROETHYL VINYL ETHER	50. ND
67-66-3	CHLOROFORM	5. ND
75-35-4	1,1-DICHLOROETHENE	5. ND
156-60-5	TRANS-1,2-DICHLOROETHENE	5. ND
78-87-5	1,2-DICHLOROPROPANE	5. ND
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5. ND
10061-01-5	CIS-1,3-DICHLOROPROPENE	5. ND
100-41-4	ETHYLBENZENE	5. ND
75-09-2	METHYLENE CHLORIDE	5. ND
74-87-3	CHLOROMETHANE	5. ND
74-83-9	BROMOMETHANE	5. ND
75-25-2	BROMOFORM	5. ND
75-27-4	BROMODICHLOROMETHANE	5. ND
124-48-1	CHLORODIBROMOMETHANE	5. ND
127-18-4	TETRACHLOROETHENE	5. ND
108-88-3	TOLUENE	5. ND
79-01-6	TRICHLOROETHENE	5. ND
75-01-4	VINYL CHLORIDE	5. ND
67-64-1	ACETONE	50. ND
78-93-3	2-BUTANONE	50. ND
75-15-0	CARBON DISULFIDE	5. ND
519-78-6	2-HEXANONE	5. ND
108-10-1	4-METHYL-2-PENTANONE	5. ND
100-42-5	STYRENE	5. ND
108-05-4	VINYL ACETATE	5. ND
95-47-6	TOTAL XYLENES	5. ND
106-93-4	ETHYLENE DIBROMIDE	5. ND

ND - THIS COMPOUND WAS NOT DETECTED; THE LIMIT OF DETECTION FOR THIS COMPOUND IS STATED TO THE LEFT OF THE ND SPECIFIER.

TR - TRACE, THIS COMPOUND WAS PRESENT, BUT WAS BELOW THE LEVEL AT WHICH THE CONCENTRATION COULD ACCURATELY BE DETERMINED. THE APPROXIMATE CONCENTRATION IS REPORTED FOR YOUR REFERENCE.

SAMPLE IDENTIFICATION: 203, S-3, 13.5-14.0  
DATE ANALYZED: 09/16/85  
UNITS: UG/KG

CAS #	COMPOUND	CONC
=====	=====	=====
71-43-2	BENZENE	5. ND
56-23-5	CARBON TETRACHLORIDE	5. ND
108-90-7	CHLOROBENZENE	5. ND
107-06-2	1,2-DICHLOROETHANE	5. ND
71-55-6	1,1,1-TRICHLOROETHANE	5. ND
75-34-3	1,1-DICHLOROETHANE	5. ND
79-00-5	1,1,2-TRICHLOROETHANE	5. ND
79-34-5	1,1,2,2-TETRACHLOROETHANE	5. ND
75-00-3	CHLOROETHANE	5. ND
110-75-8	2-CHLOROETHYL VINYL ETHER	50. ND
67-66-3	CHLOROFORM	5. ND
75-35-4	1,1-DICHLOROETHENE	5. ND
156-60-5	TRANS-1,2-DICHLOROETHENE	5. ND
78-87-5	1,2-DICHLOROPROPANE	5. ND
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5. ND
10061-01-5	CIS-1,3-DICHLOROPROPENE	5. ND
100-41-4	ETHYLBENZENE	5. ND
75-09-2	METHYLENE CHLORIDE	5. ND
74-87-3	CHLOROMETHANE	5. ND
74-83-9	BROMOMETHANE	5. ND
75-25-2	BROMOFORM	5. ND
75-27-4	BROMODICHLOROMETHANE	5. ND
124-48-1	CHLORODIBROMOMETHANE	5. ND
127-18-4	TETRACHLOROETHENE	5. ND
108-88-3	TOLUENE	5. ND
79-01-6	TRICHLOROETHENE	5. ND
75-01-4	VINYL CHLORIDE	5. ND
67-64-1	ACETONE	50. ND
78-93-3	2-BUTANONE	50. ND
75-15-0	CARBON DISULFIDE	5. ND
519-78-6	2-HEXANONE	5. ND
108-10-1	4-METHYL-2-PENTANONE	5. ND
100-42-5	STYRENE	5. ND
108-05-4	VINYL ACETATE	5. ND
95-47-6	TOTAL XYLENES	5. ND
106-93-4	ETHYLENE DIBROMIDE	5. ND

ND - THIS COMPOUND WAS NOT DETECTED; THE LIMIT OF DETECTION FOR THIS COMPOUND IS STATED TO THE LEFT OF THE ND SPECIFIER.

TR - TRACE, THIS COMPOUND WAS PRESENT, BUT WAS BELOW THE LEVEL AT WHICH THE CONCENTRATION COULD ACCURATELY BE DETERMINED. THE APPROXIMATE CONCENTRATION IS REPORTED FOR YOUR REFERENCE.

SAMPLE IDENTIFICATION: 203, S-18, 88. 5-89. 0  
DATE ANALYZED: 09/16/85  
UNITS: UG/KG

CAS #	COMPOUND	CONC
=====	=====	=====
71-43-2	BENZENE	5. ND
56-23-5	CARBON TETRACHLORIDE	5. ND
108-90-7	CHLOROBENZENE	5. ND
107-06-2	1,2-DICHLOROETHANE	5. ND
71-55-6	1,1,1-TRICHLOROETHANE	5. ND
75-34-3	1,1-DICHLOROETHANE	5. ND
79-00-5	1,1,2-TRICHLOROETHANE	5. ND
79-34-5	1,1,2,2-TETRACHLOROETHANE	5. ND
75-00-3	CHLOROETHANE	5. ND
110-75-8	2-CHLOROETHYL VINYL ETHER	50. ND
67-66-3	CHLOROFORM	5. ND
75-35-4	1,1-DICHLOROETHENE	5. ND
156-60-5	TRANS-1,2-DICHLOROETHENE	5. ND
78-87-5	1,2-DICHLOROPROPANE	5. ND
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5. ND
10061-01-5	CIS-1,3-DICHLOROPROPENE	5. ND
100-41-4	ETHYLBENZENE	5. ND
75-09-2	METHYLENE CHLORIDE	5. ND
74-87-3	CHLOROMETHANE	5. ND
74-83-9	BROMOMETHANE	5. ND
75-25-2	BROMOFORM	5. ND
75-27-4	BROMODICHLOROMETHANE	5. ND
124-48-1	CHLORODIBROMOMETHANE	5. ND
127-18-4	TETRACHLOROETHENE	5. ND
108-88-3	TOLUENE	5. ND
79-01-6	TRICHLOROETHENE	5. ND
75-01-4	VINYL CHLORIDE	5. ND
67-64-1	ACETONE	50. ND
78-93-3	2-BUTANONE	50. ND
75-15-0	CARBON DISULFIDE	5. ND
519-78-6	2-HEXANONE	5. ND
108-10-1	4-METHYL-2-PENTANONE	5. ND
100-42-5	STYRENE	5. ND
108-05-4	VINYL ACETATE	5. ND
95-47-6	TOTAL XYLENES	5. ND
106-93-4	ETHYLENE DIBROMIDE	5. ND

ND - THIS COMPOUND WAS NOT DETECTED; THE LIMIT OF DETECTION FOR THIS COMPOUND IS STATED TO THE LEFT OF THE ND SPECIFIER.

TR - TRACE, THIS COMPOUND WAS PRESENT, BUT WAS BELOW THE LEVEL AT WHICH THE CONCENTRATION COULD ACCURATELY BE DETERMINED. THE APPROXIMATE CONCENTRATION IS REPORTED FOR YOUR REFERENCE.



IT CORPORATION

# IT ANALYTICAL SERVICES

17805 Redhill Ave. • Irvine, California 92714 • 714-921-9881 • 714-528-9200



## CERTIFICATE OF ANALYSIS

Prepared For IT Corporation - Powerine Oil Date September 27, 1985  
17500 Redhill Ave., Suite 100  
Irvine, CA 92714

Attn: Ron Zinner

September 9, 1985

PC 3551/PJ 850009

34377/rjc

Nine (9) soil samples from Powerine Oil,  
Project #850009.

The samples were analyzed for volatile organic contaminants using combined gas chromatography-mass spectrometry according to EPA Method 8240, purge and trap. Results for compounds on the EPA Hazardous Substances List are given on the enclosed summary sheets.

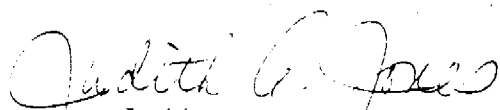
Compounds not found on the Hazardous Substance List are listed in Table I.

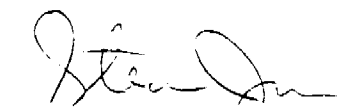
All other samples had no non-hazardous substance compounds detected.

The samples were also analyzed by atomic absorption spectroscopy for the metals listed in Table II.

In addition the samples were analyzed for oil and grease, cyanides, and total organic halogen (TOX). The results are listed in Table III.

The samples were also extracted according to EPA Method 3550 and analyzed for various phenolic compounds according to EPA Method 8040. The results are listed in Table IV.

  
Judith A. Jones  
Analytical Chemist

  
Steve Jones, Ph.D.  
Technical Director

IT Corporation  
R. Zinner

September 27, 1985  
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Table I

	<u>Concentration (Milligrams/kg)</u>	
	<u>102, S-10</u> <u>48.5-49.0</u>	<u>301, S-6</u> <u>28.5-29.0</u>
Cyclohexane	100	ND<5
Methyl cyclopentane	100	360
1,1,3-Trimethylcyclohexane	2000	1900
Unknown Hydrocarbons	1400	3820
Unknown	430	1440
2-Methyl heptane	ND<5	2500

Table II

	<u>Milligrams/kilogram</u>		
	<u>102, S-10,</u> <u>48.5-49.0</u>	<u>201, S-2,</u> <u>8.5-9.0</u>	<u>301, S-6,</u> <u>28.5-29.0</u>
Arsenic	0.5	0.2	5.4
Cadmium	TR<0.2	TR<0.2	0.3
Chromium	6	5	17
Cobalt	4	5	13
Lead	4	5	10
Mercury	0.03	0.3	0.06
Molybdenum	ND<8	ND<8	ND<8
Nickel	6	8	20
Selenium	ND<0.1	ND<0.1	ND<0.1
Vanadium	10	9	4
Zinc	19	15	58

ND - This compound was not detected; the limit of detection for this analysis is less than the amount stated in the table above.

TR - Trace, this compound was present, but was below the level at which concentration could be determined.

IT Corporation  
R. Zinner

September 26, 1985  
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Table II - Cont.

	<u>Milligrams/kilogram</u>		
	<u>309, S-2, 8.5-9.0</u>	<u>309, S-8, 38.5-39.0</u>	<u>401, S-4, 18.5-9.0</u>
Arsenic	1.8	0.8	2.4
Cadmium	TR<0.2	ND<0.2	ND<0.2
Chromium	6	7	4
Cobalt	5	4	3
Lead	5	3	3
Mercury	0.04	0.02	0.03
Molybdenum	ND<8	ND<8	ND<8
Nickel	7	5	5
Selenium	ND<0.1	ND<0.1	ND<0.1
Vanadium	20	10	10
Zinc	23	15	16

	<u>Milligrams/kilogram</u>		
	<u>401, S-8, 38.5-39.0</u>	<u>402, S-2, 8.5-9.0</u>	<u>402, S-7, 33.5-34.0</u>
Arsenic	2.4	5.5	9.8
Cadmium	0.2	TR<0.2	TR<0.2
Chromium	17	9	9
Cobalt	13	7	7
Lead	10	5	6
Mercury	0.02	0.05	0.02
Molybdenum	ND<8	ND<8	ND<8
Nickel	20	10	10
Selenium	ND<0.1	ND<0.1	ND<0.1
Vanadium	30	30	30
Zinc	47	33	27

ND - This compound was not detected; the limit of detection for this analysis is less than the amount stated in the table above.

TR - Trace, this compound was present, but was below the level at which concentration could be determined.

IT Corporation  
R. Zinner

September 26, 1985  
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Table III

	<u>Milligrams/kilogram</u>		
	<u>102, S-10, 48.5-49.0</u>	<u>201, S-2, 8.5-9.0</u>	<u>301, S-6, 28.5-29.0</u>
Cyanides	ND<0.2	0.9	0.7
Oil and Grease	1500	11000	36
T.O.X.	*	*	*

	<u>Milligrams/kilogram</u>		
	<u>309, S-2, 8.5-9.0</u>	<u>309, S-8, 38.5-39.0</u>	<u>401, S-4, 18.5-19.0</u>
Cyanides	ND<0.2	ND<0.2	0.9
Oil and Grease	ND<10	20	40
T.O.X.	*	*	*

	<u>Milligrams/kilogram</u>		
	<u>401, S-8, 38.5-39.0</u>	<u>402, S-2, 8.5-9.0</u>	<u>402, S-7, 33.5-34.0</u>
Cyanides	ND<0.2	1.1	4
Oil and Grease	TR<10	940	ND<10
T.O.X.	*	*	*

ND - This compound was not detected; the limit of detection for this analysis is less than the amount stated in the table above.

TR - Trace, this compound was present, but was below the level at which concentration could be determined.

Table IV

Job No.	Sample #	2-Chloro- phenol	2-Nitro- phenol	Phenol	2,4-Dimethyl- phenol	2,4-Dichloro- phenol	2,4,6- Trichloro phenol
		Parts Per Million (ug/g)					
34377	MB	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
34377	401-S-8	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
34377	309-S-8	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
34377	402-S-7	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
34377	402-S-2	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
34377	309-S-2	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
34377	401-S-4	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
34377	301-S-6	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
34377	102-S-10	ND<10*	12	ND<10*	TR<10*	118	ND<10*
34377	261-S-2	ND<100*	TR<100*	ND<100*	TR<100*	178	ND<100*

Job No.	Sample #	4-Chloro- 3-methyl- phenol	2,4-Dinitro- phenol	2-Methyl- 4,6-dinitro- phenol	Pentachloro- phenol	4-Nitro- phenol
		Parts Per Million (ug/g)				
34377	MB	ND<1	ND<2	ND<2	ND<1	ND<1
34377	401-S-8	ND<1	ND<2	ND<2	ND<1	ND<1
34377	309-S-8	ND<1	ND<2	ND<2	ND<1	ND<1
34377	402-S-7	ND<1	ND<2	ND<2	ND<1	ND<1
34377	402-S-2	ND<1	ND<2	ND<2	ND<1	ND<1
34377	309-S-2	ND<1	ND<2	ND<2	ND<1	ND<1
34377	401-S-4	ND<1	ND<2	ND<2	ND<1	ND<1
34377	301-S-6	ND<1	ND<2	ND<2	ND<1	ND<1
34377	102-S-10	ND<10*	ND<40*	ND<40*	ND<20*	ND<20*
34377	261-S-2	ND<100*	ND<1000*	ND<1000*	ND<500*	ND<500*

\* - High detection limit due to matrix effect.

ND - This compound was not detected; the limit of detection for this analysis is less than the amount stated in the table above.

TR - Trace, this compound was present, but was below the level at which concentration could be determined.

GC/MS ORGANICS ANALYSIS DATA SHEET  
VOLATILE COMPOUNDS

SAMPLE IDENTIFICATION: 102, S-10, 48. 5-49. 0

DATE ANALYZED: 09/11/85

UNITS: UG/KG

CAS #	COMPOUND	CONC
=====	=====	=====
71-43-2	BENZENE	78.
56-23-5	CARBON TETRACHLORIDE	5. ND
108-90-7	CHLOROBENZENE	5. ND
107-06-2	1, 2-DICHLOROETHANE	5. ND
71-55-6	1, 1, 1-TRICHLOROETHANE	5. ND
75-34-3	1, 1-DICHLOROETHANE	5. ND
79-00-5	1, 1, 2-TRICHLOROETHANE	5. ND
79-34-5	1, 1, 2, 2-TETRACHLOROETHANE	5. ND
75-00-3	CHLOROETHANE	5. ND
110-75-8	2-CHLOROETHYL VINYL ETHER	50. ND
67-66-3	CHLOROFORM	5. ND
75-35-4	1, 1-DICHLOROETHENE	5. ND
156-60-5	TRANS-1, 2-DICHLOROETHENE	5. ND
78-87-5	1, 2-DICHLOROPROPANE	5. ND
10061-02-6	TRANS-1, 3-DICHLOROPROPENE	5. ND
10061-01-5	CIS-1, 3-DICHLOROPROPENE	5. ND
100-41-4	ETHYLBENZENE	1100.
75-09-2	METHYLENE CHLORIDE	210.
74-87-3	CHLOROMETHANE	5. ND
74-83-9	BROMOMETHANE	5. ND
75-25-2	BROMOFORM	5. ND
75-27-4	BROMODICHLOROMETHANE	5. ND
124-48-1	CHLORODIBROMOMETHANE	5. ND
127-18-4	TETRACHLOROETHENE	5. ND
108-88-3	TOLUENE	3200.
79-01-6	TRICHLOROETHENE	5. ND
75-01-4	VINYL CHLORIDE	5. ND
67-64-1	ACETONE	50. ND
78-93-3	2-BUTANONE	50. ND
75-15-0	CARBON DISULFIDE	5. ND
519-78-6	2-HEXANONE	5. ND
108-10-1	4-METHYL-2-PENTANONE	5. ND
100-42-5	STYRENE	5. ND
108-05-4	VINYL ACETATE	5. ND
95-47-6	TOTAL XYLENES	2300.
106-93-4	ETHYLENE DIBROMIDE	5. ND

ND - THIS COMPOUND WAS NOT DETECTED; THE LIMIT OF DETECTION FOR THIS COMPOUND IS STATED TO THE LEFT OF THE ND SPECIFIER.

TR - TRACE, THIS COMPOUND WAS PRESENT, BUT WAS BELOW THE LEVEL AT WHICH THE CONCENTRATION COULD ACCURATELY BE DETERMINED. THE APPROXIMATE CONCENTRATION IS REPORTED FOR YOUR REFERENCE.

SAMPLE IDENTIFICATION: 201, S-2, 8.5-9.0  
DATE ANALYZED: 09/12/85  
UNITS: UG/KG

CAS #	COMPOUND	CONC
=====	=====	=====
71-43-2	BENZENE	5. ND
56-23-5	CARBON TETRACHLORIDE	5. ND
108-90-7	CHLOROBENZENE	5. ND
107-06-2	1,2-DICHLOROETHANE	5. ND
71-55-6	1,1,1-TRICHLOROETHANE	5. ND
75-34-3	1,1-DICHLOROETHANE	5. ND
79-00-5	1,1,2-TRICHLOROETHANE	5. ND
79-34-5	1,1,2,2-TETRACHLOROETHANE	5. ND
75-00-3	CHLOROETHANE	5. ND
110-75-8	2-CHLOROETHYL VINYL ETHER	50. ND
67-66-3	CHLOROFORM	5. ND
75-35-4	1,1-DICHLOROETHENE	5. ND
156-60-5	TRANS-1,2-DICHLOROETHENE	5. ND
78-87-5	1,2-DICHLOROPROPANE	5. ND
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5. ND
10061-01-5	CIS-1,3-DICHLOROPROPENE	5. ND
100-41-4	ETHYLBENZENE	11. TR
75-09-2	METHYLENE CHLORIDE	5. ND
74-87-3	CHLOROMETHANE	5. ND
74-83-9	BROMOMETHANE	5. ND
75-25-2	BROMOFORM	5. ND
75-27-4	BROMODICHLOROMETHANE	5. ND
124-48-1	CHLORODIBROMOMETHANE	5. ND
127-18-4	TETRACHLOROETHENE	5. ND
108-88-3	TOLUENE	260.
79-01-6	TRICHLOROETHENE	5. ND
75-01-4	VINYL CHLORIDE	5. ND
67-64-1	ACETONE	50. ND
78-93-3	2-BUTANONE	50. ND
75-15-0	CARBON DISULFIDE	5. ND
519-78-6	2-HEXANONE	5. ND
108-10-1	4-METHYL-2-PENTANONE	5. ND
100-42-5	STYRENE	5. ND
108-05-4	VINYL ACETATE	5. ND
95-47-6	TOTAL XYLENES	87.
106-93-4	ETHYLENE DIBROMIDE	5. ND

ND - THIS COMPOUND WAS NOT DETECTED; THE LIMIT OF DETECTION FOR THIS COMPOUND IS STATED TO THE LEFT OF THE ND SPECIFIER.

TR - TRACE, THIS COMPOUND WAS PRESENT, BUT WAS BELOW THE LEVEL AT WHICH THE CONCENTRATION COULD ACCURATELY BE DETERMINED. THE APPROXIMATE CONCENTRATION IS REPORTED FOR YOUR REFERENCE.

SAMPLE IDENTIFICATION: 301, S-6, 28.5-29.0  
DATE ANALYZED: 09/20/85  
UNITS: UG/KG

CAS #	COMPOUND	CONC
=====	=====	=====
71-43-2	BENZENE	130. ND
56-23-5	CARBON TETRACHLORIDE	130. ND
108-90-7	CHLOROBENZENE	130. ND
107-06-2	1,2-DICHLOROETHANE	130. ND
71-55-6	1,1,1-TRICHLOROETHANE	130. ND
75-34-3	1,1-DICHLOROETHANE	130. ND
79-00-5	1,1,2-TRICHLOROETHANE	130. ND
79-34-5	1,1,2,2-TETRACHLOROETHANE	130. ND
75-00-3	CHLOROETHANE	130. ND
110-75-8	2-CHLOROETHYL VINYL ETHER	1300. ND
67-66-3	CHLOROFORM	130. ND
75-35-4	1,1-DICHLOROETHENE	130. ND
156-60-5	TRANS-1,2-DICHLOROETHENE	130. ND
78-87-5	1,2-DICHLOROPROPANE	130. ND
10061-02-6	TRANS-1,3-DICHLOROPROPENE	130. ND
10061-01-5	CIS-1,3-DICHLOROPROPENE	130. ND
100-41-4	ETHYLBENZENE	130. ND
75-09-2	METHYLENE CHLORIDE	130. ND
74-87-3	CHLOROMETHANE	130. ND
74-83-9	BROMOMETHANE	130. ND
75-25-2	BROMOFORM	130. ND
75-27-4	BROMODICHLOROMETHANE	130. ND
124-48-1	CHLORODIBROMOMETHANE	130. ND
127-18-4	TETRACHLOROETHENE	130. ND
108-88-3	TOLUENE	130. ND
79-01-6	TRICHLOROETHENE	130. ND
75-01-4	VINYL CHLORIDE	130. ND
67-64-1	ACETONE	1300. ND
78-93-3	2-BUTANONE	1300. ND
75-15-0	CARBON DISULFIDE	130. ND
519-78-6	2-HEXANONE	130. ND
108-10-1	4-METHYL-2-PENTANONE	130. ND
100-42-5	STYRENE	130. ND
108-05-4	VINYL ACETATE	130. ND
95-47-6	TOTAL XYLENES	1000. TR
106-93-4	ETHYLENE DIBROMIDE	130. ND

ND - THIS COMPOUND WAS NOT DETECTED; THE LIMIT OF DETECTION FOR THIS COMPOUND IS STATED TO THE LEFT OF THE ND SPECIFIER.

TR - TRACE, THIS COMPOUND WAS PRESENT, BUT WAS BELOW THE LEVEL AT WHICH THE CONCENTRATION COULD ACCURATELY BE DETERMINED. THE APPROXIMATE CONCENTRATION IS REPORTED FOR YOUR REFERENCE.

GC/MS ORGANICS ANALYSIS DATA SHEET  
VOLATILE COMPOUNDS

SAMPLE IDENTIFICATION: 309, S-2, 8. 5-9. 0  
 DATE ANALYZED: 09/11/85  
 UNITS: UG/KG

CAS #	COMPOUND	CONC
=====	=====	=====
71-43-2	BENZENE	5. ND
56-23-5	CARBON TETRACHLORIDE	5. ND
108-90-7	CHLOROBENZENE	5. ND
107-06-2	1, 2-DICHLOROETHANE	5. ND
71-55-6	1, 1, 1-TRICHLOROETHANE	5. ND
75-34-3	1, 1-DICHLOROETHANE	5. ND
79-00-5	1, 1, 2-TRICHLOROETHANE	5. ND
79-34-5	1, 1, 2, 2-TETRACHLOROETHANE	5. ND
75-00-3	CHLOROETHANE	5. ND
110-75-8	2-CHLOROETHYL VINYL ETHER	50. ND
67-66-3	CHLOROFORM	5. ND
75-35-4	1, 1-DICHLOROETHENE	5. ND
156-60-5	TRANS-1, 2-DICHLOROETHENE	5. ND
78-87-5	1, 2-DICHLOROPROPANE	5. ND
10061-02-6	TRANS-1, 3-DICHLOROPROPENE	5. ND
10061-01-5	CIS-1, 3-DICHLOROPROPENE	5. ND
100-41-4	ETHYLBENZENE	5. ND
75-09-2	METHYLENE CHLORIDE	150.
74-87-3	CHLOROMETHANE	5. ND
74-83-9	BROMOMETHANE	5. ND
75-25-2	BROMOFORM	5. ND
75-27-4	BROMODICHLOROMETHANE	5. ND
124-48-1	CHLORODIBROMOMETHANE	5. ND
127-18-4	TETRACHLOROETHENE	230.
108-88-3	TOLUENE	5. ND
79-01-6	TRICHLOROETHENE	5. ND
75-01-4	VINYL CHLORIDE	5. ND
67-64-1	ACETONE	50. ND
78-93-3	2-BUTANONE	50. ND
75-15-0	CARBON DISULFIDE	5. ND
519-78-6	2-HEXANONE	5. ND
108-10-1	4-METHYL-2-PENTANONE	5. ND
100-42-5	STYRENE	5. ND
108-05-4	VINYL ACETATE	5. ND
95-47-6	TOTAL XYLENES	5. ND
106-93-4	ETHYLENE DIBROMIDE	5. ND

ND - THIS COMPOUND WAS NOT DETECTED; THE LIMIT OF DETECTION FOR THIS COMPOUND IS STATED TO THE LEFT OF THE ND SPECIFIER.

TR - TRACE, THIS COMPOUND WAS PRESENT, BUT WAS BELOW THE LEVEL AT WHICH THE CONCENTRATION COULD ACCURATELY BE DETERMINED. THE APPROXIMATE CONCENTRATION IS REPORTED FOR YOUR REFERENCE.

GC/MS ORGANICS ANALYSIS DATA SHEET  
VOLATILE COMPOUNDS

SAMPLE IDENTIFICATION: 309, S-8, 38, 5-39, 0  
 DATE ANALYZED: 09/12/85  
 UNITS: UG/KG

CAS #	COMPOUND	CONC
=====	=====	=====
71-43-2	BENZENE	5. ND
56-23-5	CARBON TETRACHLORIDE	5. ND
108-90-7	CHLOROBENZENE	5. ND
107-06-2	1,2-DICHLOROETHANE	5. ND
71-55-6	1,1,1-TRICHLOROETHANE	5. ND
75-34-3	1,1-DICHLOROETHANE	5. ND
79-00-5	1,1,2-TRICHLOROETHANE	5. ND
79-34-5	1,1,2,2-TETRACHLOROETHANE	5. ND
75-00-3	CHLOROETHANE	5. ND
110-75-8	2-CHLOROETHYL VINYL ETHER	50. ND
67-66-3	CHLOROFORM	5. ND
75-35-4	1,1-DICHLOROETHENE	5. ND
156-60-5	TRANS-1,2-DICHLOROETHENE	5. ND
78-87-5	1,2-DICHLOROPROPANE	5. ND
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5. ND
10061-01-5	CIS-1,3-DICHLOROPROPENE	5. ND
100-41-4	ETHYLBENZENE	5. ND
75-09-2	METHYLENE CHLORIDE	5. ND
74-87-3	CHLOROMETHANE	5. ND
74-83-9	BROMOMETHANE	5. ND
75-25-2	BROMOFORM	5. ND
75-27-4	BROMODICHLOROMETHANE	5. ND
124-48-1	CHLORODIBROMOMETHANE	5. ND
127-18-4	TETRACHLOROETHENE	5. ND
108-88-3	TOLUENE	5. ND
79-01-6	TRICHLOROETHENE	5. ND
75-01-4	VINYL CHLORIDE	5. ND
67-64-1	ACETONE	50. ND
78-93-3	2-BUTANONE	50. ND
75-15-0	CARBON DISULFIDE	5. ND
519-78-6	2-HEXANONE	5. ND
108-10-1	4-METHYL-2-PENTANONE	5. ND
100-42-5	STYRENE	5. ND
108-05-4	VINYL ACETATE	5. ND
95-47-6	TOTAL XYLENES	5. ND
106-93-4	ETHYLENE DIBROMIDE	5. ND

ND - THIS COMPOUND WAS NOT DETECTED; THE LIMIT OF DETECTION FOR THIS COMPOUND IS STATED TO THE LEFT OF THE ND SPECIFIER.

TR - TRACE, THIS COMPOUND WAS PRESENT, BUT WAS BELOW THE LEVEL AT WHICH THE CONCENTRATION COULD ACCURATELY BE DETERMINED. THE APPROXIMATE CONCENTRATION IS REPORTED FOR YOUR REFERENCE.

GC/MS ORGANICS ANALYSIS DATA SHEET  
VOLATILE COMPOUNDS

SAMPLE IDENTIFICATION: 401, S-4, 18.5-19.0  
 DATE ANALYZED: 09/11/85  
 UNITS: UG/KG

CAS #	COMPOUND	CONC
=====	=====	=====
71-43-2	BENZENE	5. ND
56-23-5	CARBON TETRACHLORIDE	5. ND
108-90-7	CHLOROBENZENE	5. ND
107-06-2	1,2-DICHLOROETHANE	5. ND
71-55-6	1,1,1-TRICHLOROETHANE	5. ND
75-34-3	1,1-DICHLOROETHANE	5. ND
79-00-5	1,1,2-TRICHLOROETHANE	5. ND
79-34-5	1,1,2,2-TETRACHLOROETHANE	5. ND
75-00-3	CHLOROETHANE	5. ND
110-75-8	2-CHLOROETHYL VINYL ETHER	50. ND
67-66-3	CHLOROFORM	5. ND
75-35-4	1,1-DICHLOROETHENE	5. ND
156-60-5	TRANS-1,2-DICHLOROETHENE	5. ND
78-87-5	1,2-DICHLOROPROPANE	5. ND
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5. ND
10061-01-5	CIS-1,3-DICHLOROPROPENE	5. ND
100-41-4	ETHYLBENZENE	5. ND
75-09-2	METHYLENE CHLORIDE	140.
74-87-3	CHLOROMETHANE	5. ND
74-83-9	BROMOMETHANE	5. ND
75-25-2	BROMOFORM	5. ND
75-27-4	BROMODICHLOROMETHANE	5. ND
124-48-1	CHLORODIBROMOMETHANE	5. ND
127-18-4	TETRACHLOROETHENE	5. ND
108-88-3	TOLUENE	5. ND
79-01-6	TRICHLOROETHENE	5. ND
75-01-4	VINYL CHLORIDE	5. ND
67-64-1	ACETONE	50. ND
78-93-3	2-BUTANONE	50. ND
75-15-0	CARBON DISULFIDE	5. ND
519-78-6	2-HEXANONE	5. ND
108-10-1	4-METHYL-2-PENTANONE	5. ND
100-42-5	STYRENE	5. ND
108-05-4	VINYL ACETATE	5. ND
95-47-6	TOTAL XYLENES	5. ND
106-93-4	ETHYLENE DIBROMIDE	5. ND

ND - THIS COMPOUND WAS NOT DETECTED; THE LIMIT OF DETECTION FOR THIS COMPOUND IS STATED TO THE LEFT OF THE ND SPECIFIER.

TR - TRACE, THIS COMPOUND WAS PRESENT, BUT WAS BELOW THE LEVEL AT WHICH THE CONCENTRATION COULD ACCURATELY BE DETERMINED. THE APPROXIMATE CONCENTRATION IS REPORTED FOR YOUR REFERENCE.

SAMPLE IDENTIFICATION: 102, S-2, 8.5-9.0  
DATE ANALYZED: 09/09/85  
UNITS: UG/KG

CAS #	COMPOUND	CONC
=====	=====	=====
71-43-2	BENZENE	390.
56-23-5	CARBON TETRACHLORIDE	5. ND
108-90-7	CHLOROBENZENE	5. ND
107-06-2	1,2-DICHLOROETHANE	5. ND
71-55-6	1,1,1-TRICHLOROETHANE	5. ND
75-34-3	1,1-DICHLOROETHANE	5. ND
79-00-5	1,1,2-TRICHLOROETHANE	5. ND
79-34-5	1,1,2,2-TETRACHLOROETHANE	5. ND
75-00-3	CHLOROETHANE	5. ND
110-75-8	2-CHLOROETHYL VINYL ETHER	50. ND
67-66-3	CHLOROFORM	5. ND
75-35-4	1,1-DICHLOROETHENE	5. ND
156-60-5	TRANS-1,2-DICHLOROETHENE	5. ND
78-87-5	1,2-DICHLOROPROPANE	5. ND
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5. ND
10061-01-5	CIS-1,3-DICHLOROPROPENE	5. ND
100-41-4	ETHYLBENZENE	390.
75-09-2	METHYLENE CHLORIDE	5. ND
74-87-3	CHLOROMETHANE	5. ND
74-83-9	BROMOMETHANE	5. ND
75-25-2	BROMOFORM	5. ND
75-27-4	BROMODICHLOROMETHANE	5. ND
124-48-1	CHLORODIBROMOMETHANE	5. ND
127-18-4	TETRACHLOROETHENE	5. ND
108-88-3	TOLUENE	1400.
79-01-6	TRICHLOROETHENE	5. ND
75-01-4	VINYL CHLORIDE	5. ND
67-64-1	ACETONE	50. ND
78-93-3	2-BUTANONE	50. ND
75-15-0	CARBON DISULFIDE	5. ND
519-78-6	2-HEXANONE	5. ND
108-10-1	4-METHYL-2-PENTANONE	5. ND
100-42-5	STYRENE	5. ND
108-05-4	VINYL ACETATE	5. ND
95-47-6	TOTAL XYLENES	49. TR
106-93-4	ETHYLENE DIBROMIDE	5. ND

ND - THIS COMPOUND WAS NOT DETECTED; THE LIMIT OF DETECTION FOR THIS COMPOUND IS STATED TO THE LEFT OF THE ND SPECIFIER.

TR - TRACE, THIS COMPOUND WAS PRESENT, BUT WAS BELOW THE LEVEL AT WHICH THE CONCENTRATION COULD ACCURATELY BE DETERMINED. THE APPROXIMATE CONCENTRATION IS REPORTED FOR YOUR REFERENCE.

GC/MS ORGANICS ANALYSIS DATA SHEET  
VOLATILE COMPOUNDS

IT CORPORATION

SAMPLE IDENTIFICATION: 102, S-3, 13, 5-14, 0  
DATE ANALYZED: 09/09/85  
UNITS: UG/KG

CAS #	COMPOUND	CONC
=====	=====	=====
71-43-2	BENZENE	260.
56-23-5	CARBON TETRACHLORIDE	5. ND
108-90-7	CHLOROBENZENE	5. ND
107-06-2	1,2-DICHLOROETHANE	5. ND
71-55-6	1,1,1-TRICHLOROETHANE	5. ND
75-34-3	1,1-DICHLOROETHANE	5. ND
79-00-5	1,1,2-TRICHLOROETHANE	5. ND
79-34-5	1,1,2,2-TETRACHLOROETHANE	5. ND
75-00-3	CHLOROETHANE	5. ND
110-75-8	2-CHLOROETHYL VINYL ETHER	50. ND
67-66-3	CHLOROFORM	5. ND
75-35-4	1,1-DICHLOROETHENE	5. ND
156-60-5	TRANS-1,2-DICHLOROETHENE	5. ND
78-87-5	1,2-DICHLOROPROPANE	5. ND
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5. ND
10061-01-5	CIS-1,3-DICHLOROPROPENE	5. ND
100-41-4	ETHYLBENZENE	220.
75-09-2	METHYLENE CHLORIDE	130.
74-87-3	CHLOROMETHANE	5. ND
74-83-9	BROMOMETHANE	5. ND
75-25-2	BROMOFORM	5. ND
75-27-4	BROMODICHLOROMETHANE	5. ND
124-48-1	CHLORODIBROMOMETHANE	5. ND
127-18-4	TETRACHLOROETHENE	5. ND
108-88-3	TOLUENE	100.
79-01-6	TRICHLOROETHENE	5. ND
75-01-4	VINYL CHLORIDE	5. ND
67-64-1	ACETONE	50. ND
78-93-3	2-BUTANONE	50. ND
75-15-0	CARBON DISULFIDE	5. ND
519-78-6	2-HEXANONE	5. ND
108-10-1	4-METHYL-2-PENTANONE	5. ND
100-42-5	STYRENE	5. ND
108-05-4	VINYL ACETATE	5. ND
95-47-6	TOTAL XYLENES	26. TR
106-93-4	ETHYLENE DIBROMIDE	5. ND

ND - THIS COMPOUND WAS NOT DETECTED; THE LIMIT OF DETECTION FOR THIS COMPOUND IS STATED TO THE LEFT OF THE ND SPECIFIER.

TR - TRACE, THIS COMPOUND WAS PRESENT, BUT WAS BELOW THE LEVEL AT WHICH THE CONCENTRATION COULD ACCURATELY BE DETERMINED. THE APPROXIMATE CONCENTRATION IS REPORTED FOR YOUR REFERENCE.

SAMPLE IDENTIFICATION: 103, S-1, 3, 5-4, 0  
DATE ANALYZED: 09/09/85  
UNITS: UG/KG

CAS #	COMPOUND	CONC
=====	=====	=====
71-43-2	BENZENE	5. ND
56-23-5	CARBON TETRACHLORIDE	5. ND
108-90-7	CHLOROBENZENE	5. ND
107-06-2	1, 2-DICHLOROETHANE	5. ND
71-55-6	1, 1, 1-TRICHLOROETHANE	5. ND
75-34-3	1, 1-DICHLOROETHANE	5. ND
79-00-5	1, 1, 2-TRICHLOROETHANE	5. ND
79-34-5	1, 1, 2, 2-TETRACHLOROETHANE	5. ND
75-00-3	CHLOROETHANE	5. ND
110-75-8	2-CHLOROETHYL VINYL ETHER	50. ND
67-66-3	CHLOROFORM	5. ND
75-35-4	1, 1-DICHLOROETHENE	5. ND
156-60-5	TRANS-1, 2-DICHLOROETHENE	5. ND
78-87-5	1, 2-DICHLOROPROPANE	5. ND
10061-02-6	TRANS-1, 3-DICHLOROPROPENE	5. ND
10061-01-5	CIS-1, 3-DICHLOROPROPENE	5. ND
100-41-4	ETHYLBENZENE	5. ND
75-09-2	METHYLENE CHLORIDE	100.
74-87-3	CHLOROMETHANE	5. ND
74-83-9	BROMOMETHANE	5. ND
75-25-2	BROMOFORM	5. ND
75-27-4	BROMODICHLOROMETHANE	5. ND
124-48-1	CHLORODIBROMOMETHANE	5. ND
127-18-4	TETRACHLOROETHENE	5. ND
108-88-3	TOLUENE	5. ND
79-01-6	TRICHLOROETHENE	5. ND
75-01-4	VINYL CHLORIDE	5. ND
67-64-1	ACETONE	50. ND
78-93-3	2-BUTANONE	50. ND
75-15-0	CARBON DISULFIDE	5. ND
519-78-6	2-HEXANONE	5. ND
108-10-1	4-METHYL-2-PENTANONE	5. ND
100-42-5	STYRENE	5. ND
108-05-4	VINYL ACETATE	5. ND
95-47-6	TOTAL XYLENES	5. ND
106-93-4	ETHYLENE DIBROMIDE	5. ND

ND - THIS COMPOUND WAS NOT DETECTED; THE LIMIT OF DETECTION FOR THIS COMPOUND IS STATED TO THE LEFT OF THE ND SPECIFIER.

TR - TRACE, THIS COMPOUND WAS PRESENT, BUT WAS BELOW THE LEVEL AT WHICH THE CONCENTRATION COULD ACCURATELY BE DETERMINED THE APPROXIMATE CONCENTRATION IS REPORTED FOR YOUR REFERENCE.

SAMPLE IDENTIFICATION: 103, S-17, 83-83.5  
DATE ANALYZED: 09/09/85  
UNITS: UG/KG

CAS #	COMPOUND	CONC
=====	=====	=====
71-43-2	BENZENE	5. ND
56-23-5	CARBON TETRACHLORIDE	5. ND
108-90-7	CHLOROBENZENE	5. ND
107-06-2	1,2-DICHLOROETHANE	5. ND
71-55-6	1,1,1-TRICHLOROETHANE	5. ND
75-34-3	1,1-DICHLOROETHANE	5. ND
79-00-5	1,1,2-TRICHLOROETHANE	5. ND
79-34-5	1,1,2,2-TETRACHLOROETHANE	5. ND
75-00-3	CHLOROETHANE	5. ND
110-75-8	2-CHLOROETHYL VINYL ETHER	50. ND
67-66-3	CHLOROFORM	5. ND
75-35-4	1,1-DICHLOROETHENE	5. ND
156-60-5	TRANS-1,2-DICHLOROETHENE	5. ND
78-87-5	1,2-DICHLOROPROPANE	5. ND
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5. ND
10061-01-5	CIS-1,3-DICHLOROPROPENE	5. ND
100-41-4	ETHYLBENZENE	5. ND
75-09-2	METHYLENE CHLORIDE	110.
74-87-3	CHLOROMETHANE	5. ND
74-83-9	BROMOMETHANE	5. ND
75-25-2	BROMOFORM	5. ND
75-27-4	BROMODICHLOROMETHANE	5. ND
124-48-1	CHLORODIBROMOMETHANE	5. ND
127-18-4	TETRACHLOROETHENE	5. ND
108-88-3	TOLUENE	5. ND
79-01-6	TRICHLOROETHENE	5. ND
75-01-4	VINYL CHLORIDE	5. ND
67-64-1	ACETONE	50. ND
78-93-3	2-BUTANONE	50. ND
75-15-0	CARBON DISULFIDE	5. ND
519-78-6	2-HEXANONE	5. ND
108-10-1	4-METHYL-2-PENTANONE	5. ND
100-42-5	STYRENE	5. ND
108-05-4	VINYL ACETATE	5. ND
95-47-6	TOTAL XYLENES	5. ND
106-93-4	ETHYLENE DIBROMIDE	5. ND

ND - THIS COMPOUND WAS NOT DETECTED; THE LIMIT OF DETECTION FOR THIS COMPOUND IS STATED TO THE LEFT OF THE ND SPECIFIER

TR - TRACE, THIS COMPOUND WAS PRESENT, BUT WAS BELOW THE LEVEL AT WHICH THE CONCENTRATION COULD ACCURATELY BE DETERMINED. THE APPROXIMATE CONCENTRATION IS REPORTED FOR YOUR REFERENCE.

GC/MS ORGANICS ANALYSIS DATA SHEET  
VOLATILE COMPOUNDS

IT CORPORATION

SAMPLE IDENTIFICATION: 107, S-3, 13.5-14.0  
DATE ANALYZED: 09/09/85  
UNITS: UG/KG

CAS #	COMPOUND	CONC
=====	=====	=====
71-43-2	BENZENE	5. ND
56-23-5	CARBON TETRACHLORIDE	5. ND
108-90-7	CHLOROBENZENE	5. ND
107-06-2	1,2-DICHLOROETHANE	5. ND
71-55-6	1,1,1-TRICHLOROETHANE	5. ND
75-34-3	1,1-DICHLOROETHANE	5. ND
79-00-5	1,1,2-TRICHLOROETHANE	5. ND
79-34-5	1,1,2,2-TETRACHLOROETHANE	5. ND
75-00-3	CHLOROETHANE	5. ND
110-75-8	2-CHLOROETHYL VINYL ETHER	50. ND
67-66-3	CHLOROFORM	5. ND
75-35-4	1,1-DICHLOROETHENE	5. ND
156-60-5	TRANS-1,2-DICHLOROETHENE	5. ND
78-87-5	1,2-DICHLOROPROPANE	5. ND
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5. ND
10061-01-5	CIS-1,3-DICHLOROPROPENE	5. ND
100-41-4	ETHYLBENZENE	5. ND
75-09-2	METHYLENE CHLORIDE	5. ND
74-87-3	CHLOROMETHANE	5. ND
74-83-9	BROMOMETHANE	5. ND
75-25-2	BROMOFORM	5. ND
75-27-4	BROMODICHLOROMETHANE	5. ND
124-48-1	CHLORODIBROMOMETHANE	5. ND
127-18-4	TETRACHLOROETHENE	5. ND
108-88-3	TOLUENE	5. ND
79-01-6	TRICHLOROETHENE	5. ND
75-01-4	VINYL CHLORIDE	5. ND
67-64-1	ACETONE	50. ND
78-93-3	2-BUTANONE	50. ND
75-15-0	CARBON DISULFIDE	5. ND
519-78-6	2-HEXANONE	5. ND
108-10-1	4-METHYL-2-PENTANONE	5. ND
100-42-5	STYRENE	5. ND
108-05-4	VINYL ACETATE	5. ND
95-47-6	TOTAL XYLENES	5. ND
106-93-4	ETHYLENE DIBROMIDE	5. ND

ND - THIS COMPOUND WAS NOT DETECTED; THE LIMIT OF DETECTION FOR THIS COMPOUND IS STATED TO THE LEFT OF THE ND SPECIFIER

TR - TRACE, THIS COMPOUND WAS PRESENT, BUT WAS BELOW THE LEVEL AT WHICH THE CONCENTRATION COULD ACCURATELY BE DETERMINED. THE APPROXIMATE CONCENTRATION IS REPORTED FOR YOUR REFERENCE.



# IT ANALYTICAL SERVICES

17635 Fabrice Way • Services California 92701 • 714-921-9881 • 714-923-9200

## CERTIFICATE OF ANALYSIS

Received From: IT Corporation - Powerine Oil Co. Date: September 23, 1985  
17500 Redhill Ave., Suite 100  
Irvine, CA 92714

Attn: Ron Zinner

August 23, 1985

850009

34219/rjc

Three (3) soil samples from Powerine Oil Co.,  
Project #850009.

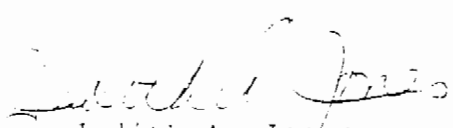
The samples were analyzed by atomic absorption spectroscopy for the metals listed in Table I.

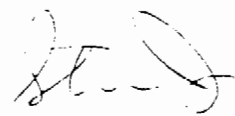
The samples were also analyzed for oil and grease, cyanides, and total organic halogen (TOX), with the results presented in Table II.

In addition the samples were analyzed for volatile organic contaminants using combined gas chromatography-mass spectrometry according to EPA Method 8240, purge and trap. Results for compounds on the EPA Hazardous Substances List are given on the enclosed summary sheets.

No other compounds were found in the samples.

The samples were also extracted according to EPA Method 3550 and analyzed for various phenolic compounds according to EPA Method 8040. The results may be found in Table III.

  
Judith A. Jones  
Analytical Chemist

  
Steve Jones, Ph.D.  
Technical Director

IT Corporation  
T. Zinner

September 23, 1985  
JN: 34219 - Page 2

Table I

	<u>Milligrams/kilogram</u>		
	<u>S-1, 104, 2.5-3.0</u>	<u>S-3, 104, 12.5-13.0</u>	<u>S-17, 104, 85-85.5</u>
Arsenic	2.5	2.2	1.3
Cadmium	0.6	0.2	0.3
Chromium	25	5.4	10
Cobalt	15	4.2	5.1
Lead	12	3	4
Mercury	0.03	0.07	0.03
Molybdenum	ND<7	ND<7	ND<7
Nickel	28	6.4	7.0
Selenium	ND<0.1	ND<0.1	TR<0.1
Vanadium	47	14	22
Zinc	51	16	17

Table II

	<u>Milligrams/kilogram</u>		
	<u>S-1, 104, 2.5-3.0</u>	<u>S-3, 104, 12.5-13.0</u>	<u>S-17, 104, 85-85.5</u>
Cyanides	ND<0.2	ND<0.2	0.2
Oil and grease	49	59	*
T.O.X.	<1	<1	<1

\* - Insufficient sample.

ND - This compound was not detected; the limit of detection for this analysis is less than the amount stated in the table above.

Table III

<u>Job Number</u>	<u>Sample #</u>	<u>2-Chloro- phenol</u>	<u>2-Nitro- phenol</u>	<u>Phenol</u>	<u>2,4-Dimethyl- phenol</u>	<u>2,4-Dichloro- phenol</u>	<u>2,4,6-Trichloro- phenol</u>
<u>ppm (ug/g)</u>							
	MB-0916-						
34219	B15	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
34219	104,5-1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
34219	104,5-3	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
34219	104,5-17	*					

<u>Job Number</u>	<u>Sample #</u>	<u>4-Chloro- 3-methyl- phenol</u>	<u>2,4-Dinitro- phenol</u>	<u>2-Methyl- 4,6-Dinitro- phenol</u>	<u>Pentachloro- phenol</u>	<u>4-Nitro- phenol</u>
<u>ppm (ug/g)</u>						
	MB-0916-					
34219	B15					
34219	104,5-1	ND<1	ND<2	ND<2	ND<1	ND<1
	104,5-3	ND<1	ND<2	ND<2	ND<1	ND<1
	104,51-17	ND<1	ND<2	ND<2	ND<1	ND<1

\* - Insufficient sample.

ND - This compound was not detected; the limit of detection for this analysis is less than the amount stated in the table above.

SAMPLE IDENTIFICATION: 104, S-1, 2.5-3.0  
DATE ANALYZED: 09/06/85  
UNITS: UG/KG

CAS #	COMPOUND	CONC
=====	=====	=====
71-43-2	BENZENE	5. ND
56-23-5	CARBON TETRACHLORIDE	5. ND
108-90-7	CHLOROBENZENE	5. ND
107-06-2	1,2-DICHLOROETHANE	5. ND
71-55-6	1,1,1-TRICHLOROETHANE	5. ND
75-34-3	1,1-DICHLOROETHANE	5. ND
79-00-5	1,1,2-TRICHLOROETHANE	5. ND
79-34-5	1,1,2,2-TETRACHLOROETHANE	5. ND
75-00-3	CHLOROETHANE	5. ND
110-75-8	2-CHLOROETHYL VINYL ETHER	50. ND
67-66-3	CHLOROFORM	5. ND
75-35-4	1,1-DICHLOROETHENE	5. ND
156-60-5	TRANS-1,2-DICHLOROETHENE	5. ND
78-87-5	1,2-DICHLOROPROPANE	5. ND
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5. ND
10061-01-5	CIS-1,3-DICHLOROPROPENE	5. ND
100-41-4	ETHYLBENZENE	5. ND
75-09-2	METHYLENE CHLORIDE	5. ND
74-87-3	CHLOROMETHANE	5. ND
74-83-9	BROMOMETHANE	5. ND
75-25-2	BROMOFORM	5. ND
75-27-4	BROMODICHLOROMETHANE	5. ND
124-48-1	CHLORODIBROMOMETHANE	5. ND
127-18-4	TETRACHLOROETHENE	5. ND
108-88-3	TOLUENE	5. ND
79-01-6	TRICHLOROETHENE	5. ND
75-01-4	VINYL CHLORIDE	5. ND
67-64-1	ACETONE	50. ND
78-93-3	2-BUTANONE	50. ND
75-15-0	CARBON DISULFIDE	5. ND
519-78-6	2-HEXANONE	5. ND
108-10-1	4-METHYL-2-PENTANONE	5. ND
100-42-5	STYRENE	5. ND
108-05-4	VINYL ACETATE	5. ND
95-47-6	TOTAL XYLENES	5. ND
106-93-4	ETHYLENE DIBROMIDE	5. ND

ND - THIS COMPOUND WAS NOT DETECTED; THE LIMIT OF DETECTION FOR THIS COMPOUND IS STATED TO THE LEFT OF THE ND SPECIFIER.

TR - TRACE, THIS COMPOUND WAS PRESENT, BUT WAS BELOW THE LEVEL AT WHICH THE CONCENTRATION COULD ACCURATELY BE DETERMINED. THE APPROXIMATE CONCENTRATION IS REPORTED FOR YOUR REFERENCE.

SAMPLE IDENTIFICATION: 104, S-3, 12, 5-13.0  
DATE ANALYZED: 09/06/85  
UNITS: UG/KG

CAS #	COMPOUND	CONC
=====	=====	=====
71-43-2	BENZENE	5. ND
56-23-5	CARBON TETRACHLORIDE	5. ND
108-90-7	CHLOROBENZENE	5. ND
107-06-2	1,2-DICHLOROETHANE	5. ND
71-55-6	1,1,1-TRICHLOROETHANE	5. ND
75-34-3	1,1-DICHLOROETHANE	5. ND
79-00-5	1,1,2-TRICHLOROETHANE	5. ND
79-34-5	1,1,2,2-TETRACHLOROETHANE	5. ND
75-00-3	CHLOROETHANE	5. ND
110-75-8	2-CHLOROETHYL VINYL ETHER	50. ND
67-66-3	CHLOROFORM	5. ND
75-35-4	1,1-DICHLOROETHENE	5. ND
156-60-5	TRANS-1,2-DICHLOROETHENE	5. ND
78-87-5	1,2-DICHLOROPROPANE	5. ND
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5. ND
10061-01-5	CIS-1,3-DICHLOROPROPENE	5. ND
100-41-4	ETHYLBENZENE	5. ND
75-09-2	METHYLENE CHLORIDE	5. ND
74-87-3	CHLOROMETHANE	5. ND
74-83-9	BROMOMETHANE	5. ND
75-25-2	BROMOFORM	5. ND
75-27-4	BROMODICHLOROMETHANE	5. ND
124-48-1	CHLORODIBROMOMETHANE	5. ND
127-18-4	TETRACHLOROETHENE	5. ND
108-88-3	TOLUENE	5. ND
79-01-6	TRICHLOROETHENE	5. ND
75-01-4	VINYL CHLORIDE	5. ND
67-64-1	ACETONE	50. ND
78-93-3	2-BUTANONE	50. ND
75-15-0	CARBON DISULFIDE	5. ND
519-78-6	2-HEXANONE	5. ND
108-10-1	4-METHYL-2-PENTANONE	5. ND
100-42-5	STYRENE	5. ND
108-05-4	VINYL ACETATE	5. ND
95-47-6	TOTAL XYLENES	5. ND
106-93-4	ETHYLENE DIBROMIDE	5. ND

ND - THIS COMPOUND WAS NOT DETECTED; THE LIMIT OF DETECTION FOR THIS COMPOUND IS STATED TO THE LEFT OF THE ND SPECIFIER.

TR - TRACE, THIS COMPOUND WAS PRESENT, BUT WAS BELOW THE LEVEL AT WHICH THE CONCENTRATION COULD ACCURATELY BE DETERMINED. THE APPROXIMATE CONCENTRATION IS REPORTED FOR YOUR REFERENCE.

SAMPLE IDENTIFICATION: 104, S-17, 85-85.5  
DATE ANALYZED: 09/06/85  
UNITS: UG/KG

CAS # =====	COMPOUND =====	CONC =====
71-43-2	BENZENE	5. ND
56-23-5	CARBON TETRACHLORIDE	5. ND
108-90-7	CHLOROBENZENE	5. ND
107-06-2	1,2-DICHLOROETHANE	5. ND
71-55-6	1,1,1-TRICHLOROETHANE	5. ND
75-34-3	1,1-DICHLOROETHANE	5. ND
79-00-5	1,1,2-TRICHLOROETHANE	5. ND
79-34-5	1,1,2,2-TETRACHLOROETHANE	5. ND
75-00-3	CHLOROETHANE	5. ND
110-75-8	2-CHLOROETHYL VINYL ETHER	50. ND
67-66-3	CHLOROFORM	5. ND
75-35-4	1,1-DICHLOROETHENE	5. ND
156-60-5	TRANS-1,2-DICHLOROETHENE	5. ND
78-87-5	1,2-DICHLOROPROPANE	5. ND
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5. ND
10061-01-5	CIS-1,3-DICHLOROPROPENE	5. ND
100-41-4	ETHYLBENZENE	5. ND
75-09-2	METHYLENE CHLORIDE	5. ND
74-87-3	CHLOROMETHANE	5. ND
74-83-9	BROMOMETHANE	5. ND
75-25-2	BROMOFORM	5. ND
75-27-4	BROMODICHLOROMETHANE	5. ND
124-48-1	CHLORODIBROMOMETHANE	5. ND
127-18-4	TETRACHLOROETHENE	5. ND
108-88-3	TOLUENE	5. ND
79-01-6	TRICHLOROETHENE	5. ND
75-01-4	VINYL CHLORIDE	5. ND
67-64-1	ACETONE	50. ND
78-93-3	2-BUTANONE	50. ND
75-15-0	CARBON DISULFIDE	5. ND
519-78-6	2-HEXANONE	5. ND
108-10-1	4-METHYL-2-PENTANONE	5. ND
100-42-5	STYRENE	5. ND
108-05-4	VINYL ACETATE	5. ND
95-47-6	TOTAL XYLENES	5. ND
106-93-4	ETHYLENE DIBROMIDE	5. ND

ND - THIS COMPOUND WAS NOT DETECTED; THE LIMIT OF DETECTION FOR THIS COMPOUND IS STATED TO THE LEFT OF THE ND SPECIFIER

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IT CORPORATION

# IT ANALYTICAL SERVICES

17615 Redhill Ave. • Irvine, California 92714 • 714-921-8831 • 714-523-9200

## CERTIFICATE OF ANALYSIS

IT Corporation - Powerine Oil Co.      Date: September 23, 1985  
17500 Redhill Ave., Suite 100  
Irvine, CA 92714

Attn: Ron Zinner

August 27, 1985

PC 2521/PJ 850009

34243/rjc

Three (3) soil samples from Powerine Oil Co.,  
Project #350009.

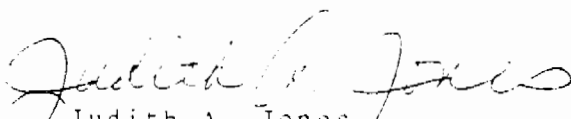
The samples were analyzed by atomic absorption spectroscopy for the metals listed in Table I.

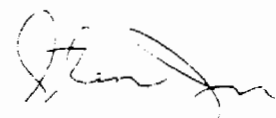
The samples were also analyzed for oil and grease, cyanides, and total organic halogen (TOX), with the results presented in Table II.

In addition the samples were analyzed for volatile organic contaminants using combined gas chromatography-mass spectrometry according to EPA Method 8240, purge and trap. Results for compounds on the EPA Hazardous Substances List are given on the enclosed summary sheets.

Components detected but not found on the EPA Hazardous Substance List are listed in Table III.

The samples were also extracted according to EPA Method 3550 and analyzed for various phenolic compounds according to EPA Method 8040. The results may be found in Table IV.

  
Judith A. Jones  
Analytical Chemist

  
Steve Jones, Ph.D.  
Technical Director

IT Corporation  
T. Zinner

September 23, 1985  
JN: 34243 - Page 2

Table I

	<u>Milligrams/kilogram</u>		
	<u>101, S-2, 9.0-9.5</u>	<u>101, S-3, 13.5-14</u>	<u>101, S-16, 78.5-79</u>
Arsenic	1.7	1.9	1.1
Cadmium	0.5	0.4	0.2
Chromium	15	19	6.6
Cobalt	12	12	4.2
Lead	8	8	3
Mercury	0.05	0.05	0.01
Molybdenum	ND<7	ND<7	ND<7
Nickel	20	19	5.4
Selenium	ND<0.1	ND<0.1	ND<0.1
Vanadium	36	32	14
Zinc	42	45	14

Table II

	<u>Milligrams/kilogram</u>		
	<u>101, S-2, 9.0-9.5</u>	<u>101, S-3, 3.5-14</u>	<u>101, S-16, 78.5-79</u>
Cyanides	ND<0.2	2	ND<0.2
Oil and grease	60	71	82
T.O.X.	5.8	57	27

Table III

	<u>Concentration (micrograms/kg)</u>		
<u>Compound</u>	<u>101, S-2 9.0-9.5</u>	<u>101, S-3 13.5-14</u>	<u>101, S-16 78.5-79</u>
Diethylether	ND<5	25	ND<5

ND - This compound was not detected; the limit of detection for this analysis is less than the amount stated in the table above.

Table IV

<u>Job Number</u>	<u>Sample #</u>	<u>2-Chloro- phenol</u>	<u>2-Nitro- phenol</u>	<u>Phenol</u>	<u>2,4-Dimethyl- phenol</u>	<u>2,4-Dichloro- phenol</u>	<u>2,4,6-Trichloro- phenol</u>
<u>ppm (ug/g)</u>							
34243	MB917B	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
34243	101,5-2	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
34243	101,5-3	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
34243	101,5-16	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1

<u>Job Number</u>	<u>Sample #</u>	<u>4-Chloro- 3-methyl- phenol</u>	<u>2,4-Dinitro- phenol</u>	<u>2-Methyl- 4,6-Dinitro- phenol</u>	<u>Pentachloro- phenol</u>	<u>4-Nitro- phenol</u>
<u>ppm (ug/g)</u>						
34243	MB917B	ND<1	ND<2	ND<2	ND<1	ND<1
34243	101,5-2	ND<1	ND<2	ND<2	ND<1	ND<1
34243	101,5-3	ND<1	ND<10*	ND<10*	ND<5*	ND<5*
34243	101,5-16	ND<1	ND<2	ND<2	ND<1	ND<1

\* High detection limit due to matrix effect.

ND - This compound was not detected; the limit of detection for this analysis is less than the amount stated in the table above.

SAMPLE IDENTIFICATION: 101, S-2, 9.0-9.5  
DATE ANALYZED: 09/06/85  
UNITS: UG/KG

CAS #	COMPOUND	CONC
=====	=====	=====
71-43-2	BENZENE	5. ND
56-23-5	CARBON TETRACHLORIDE	5. ND
108-90-7	CHLOROBENZENE	5. ND
107-06-2	1,2-DICHLOROETHANE	5. ND
71-55-6	1,1,1-TRICHLOROETHANE	5. ND
75-34-3	1,1-DICHLOROETHANE	5. ND
79-00-5	1,1,2-TRICHLOROETHANE	5. ND
79-34-5	1,1,2,2-TETRACHLOROETHANE	5. ND
75-00-3	CHLOROETHANE	5. ND
110-75-8	2-CHLOROETHYL VINYL ETHER	50. ND
67-66-3	CHLOROFORM	5. ND
75-35-4	1,1-DICHLOROETHENE	5. ND
156-60-5	TRANS-1,2-DICHLOROETHENE	5. ND
78-87-5	1,2-DICHLOROPROPANE	5. ND
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5. ND
10061-01-5	CIS-1,3-DICHLOROPROPENE	5. ND
100-41-4	ETHYLBENZENE	5. ND
75-09-2	METHYLENE CHLORIDE	5. ND
74-87-3	CHLOROMETHANE	5. ND
74-83-9	BROMOMETHANE	5. ND
75-25-2	BROMOFORM	5. ND
75-27-4	BROMODICHLOROMETHANE	5. ND
124-48-1	CHLORODIBROMOMETHANE	5. ND
127-18-4	TETRACHLOROETHENE	5. ND
108-88-3	TOLUENE	5. ND
79-01-6	TRICHLOROETHENE	5. ND
75-01-4	VINYL CHLORIDE	5. ND
67-64-1	ACETONE	50. ND
78-93-3	2-BUTANONE	50. ND
75-15-0	CARBON DISULFIDE	5. ND
519-78-6	2-HEXANONE	5. ND
108-10-1	4-METHYL-2-PENTANONE	5. ND
100-42-5	STYRENE	5. ND
108-05-4	VINYL ACETATE	5. ND
95-47-6	TOTAL XYLENES	5. ND
106-93-4	ETHYLENE DIBROMIDE	5. ND

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SAMPLE IDENTIFICATION: 101, S-3, 13.5-14  
DATE ANALYZED: 09/06/85  
UNITS: UG/KG

CAS #	COMPOUND	CONC
=====	=====	=====
71-43-2	BENZENE	5. ND
56-23-5	CARBON TETRACHLORIDE	5. ND
108-90-7	CHLOROBENZENE	5. ND
107-06-2	1,2-DICHLOROETHANE	5. ND
71-55-6	1,1,1-TRICHLOROETHANE	5. ND
75-34-3	1,1-DICHLOROETHANE	5. ND
79-00-5	1,1,2-TRICHLOROETHANE	5. ND
79-34-5	1,1,2,2-TETRACHLOROETHANE	5. ND
75-00-3	CHLOROETHANE	5. ND
110-75-8	2-CHLOROETHYL VINYL ETHER	50. ND
67-66-3	CHLOROFORM	5. ND
75-35-4	1,1-DICHLOROETHENE	5. ND
156-60-5	TRANS-1,2-DICHLOROETHENE	5. ND
78-87-5	1,2-DICHLOROPROPANE	5. ND
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5. ND
10061-01-5	CIS-1,3-DICHLOROPROPENE	5. ND
100-41-4	ETHYLBENZENE	5. ND
75-09-2	METHYLENE CHLORIDE	5. ND
74-87-3	CHLOROMETHANE	5. ND
74-83-9	BROMOMETHANE	5. ND
75-25-2	BROMOFORM	5. ND
75-27-4	BROMODICHLOROMETHANE	5. ND
124-48-1	CHLORODIBROMOMETHANE	5. ND
127-18-4	TETRACHLOROETHENE	5. ND
108-88-3	TOLUENE	5. ND
79-01-6	TRICHLOROETHENE	5. ND
75-01-4	VINYL CHLORIDE	5. ND
67-64-1	ACETONE	50. ND
78-93-3	2-BUTANONE	50. ND
75-15-0	CARBON DISULFIDE	5. ND
519-78-6	2-HEXANONE	5. ND
108-10-1	4-METHYL-2-PENTANONE	5. ND
100-42-5	STYRENE	5. ND
108-05-4	VINYL ACETATE	5. ND
95-47-6	TOTAL XYLENES	5. ND
106-93-4	ETHYLENE DIBROMIDE	5. ND

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SAMPLE IDENTIFICATION: 101, S-16, 78.5-79  
DATE ANALYZED: 09/06/85  
UNITS: UG/KG

CAS #	COMPOUND	CONC
=====	=====	=====
71-43-2	BENZENE	5. ND
56-23-5	CARBON TETRACHLORIDE	5. ND
108-90-7	CHLOROBENZENE	5. ND
107-06-2	1,2-DICHLOROETHANE	5. ND
71-55-6	1,1,1-TRICHLOROETHANE	5. ND
75-34-3	1,1-DICHLOROETHANE	5. ND
79-00-5	1,1,2-TRICHLOROETHANE	5. ND
79-34-5	1,1,2,2-TETRACHLOROETHANE	5. ND
75-00-3	CHLOROETHANE	5. ND
110-75-8	2-CHLOROETHYL VINYL ETHER	50. ND
67-66-3	CHLOROFORM	5. ND
75-35-4	1,1-DICHLOROETHENE	5. ND
156-60-5	TRANS-1,2-DICHLOROETHENE	5. ND
78-87-5	1,2-DICHLOROPROPANE	5. ND
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5. ND
10061-01-5	CIS-1,3-DICHLOROPROPENE	5. ND
100-41-4	ETHYLBENZENE	5. ND
75-09-2	METHYLENE CHLORIDE	5. ND
74-87-3	CHLOROMETHANE	5. ND
74-83-9	BROMOMETHANE	5. ND
75-25-2	BROMOFORM	5. ND
75-27-4	BROMODICHLOROMETHANE	5. ND
124-48-1	CHLORODIBROMOMETHANE	5. ND
127-18-4	TETRACHLOROETHENE	5. ND
108-88-3	TOLUENE	5. ND
79-01-6	TRICHLOROETHENE	5. ND
75-01-4	VINYL CHLORIDE	5. ND
67-64-1	ACETONE	50. ND
78-93-3	2-BUTANONE	50. ND
75-15-0	CARBON DISULFIDE	5. ND
519-78-6	2-HEXANONE	5. ND
108-10-1	4-METHYL-2-PENTANONE	5. ND
100-42-5	STYRENE	5. ND
108-05-4	VINYL ACETATE	5. ND
95-47-6	TOTAL XYLENES	5. ND
106-93-4	ETHYLENE DIBROMIDE	5. ND

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APPENDIX  
**C**

RECEIVED

MAY 28 1985

JHK &amp; A LA

BROWN AND CALDWELL



ANALYTICAL LABORATORIES

LOG NO: P85-05-131

Received: 07 MAY 85

Reported: 22 MAY 85

Randy Harris  
J.H. KLEINFELDER & ASSOCIATES  
901 W. Victoria St., Suite G  
Compton, CA 90220

Purchase Order: Q1002-1.2

## REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, AQUEOUS SAMPLES	DATE SAMPLED
05-131-1	P-08-06 Q1002-1.2	07 MAY 85
05-131-2	P-07-09 Q1002-1.2	07 MAY 85
PARAMETER	05-131-1	05-131-2
Purgeable Priority Pollutants		
Extraction	05/19/85	05/19/85
Acrolein, ug/L	<10	<10
Acrylonitrile, ug/L	<10	<10
Other Purgeable Priority Pollutants,	<1	<1

MAY 28 1985

JHK & A LA

LOG NO: P85-05-131

Received: 07 MAY 85

Reported: 22 MAY 85

Randy Harris  
J.H. KLEINFELDER & ASSOCIATES  
901 W. Victoria St., Suite G  
Compton, CA 90220

Purchase Order: Q1002-1.2

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, AQUEOUS SAMPLES	DATE SAMPLE
05-131-3	P-08-07 Q1002-1.2	07 MAY 85
05-131-4	P-07-10 Q1002-1.2	07 MAY 85
PARAMETER	05-131-3	05-131-4
Total Fuel Hydrocarbons, mg/L	<1	<1

Edward Wilson, Laboratory Director

BROWN AND CALDWELL



ANALYTICAL LABORATORIES

LOG NO: P85-05-133

Received: 07 MAY 85

Reported: 24 MAY 85

Randy Harris  
J.H. KLEINFELDER & ASSOCIATES  
901 W. Victoria St., Suite G  
Compton, CA 90220

Purchase Order: Q1002-1.2

## REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, AQUEOUS SAMPLES	DATE SAMPLED	
05-133-1	P-08-08 Q1002-1.2	07 MAY 85	
05-133-2	P-07-11 Q1002-1.2	07 MAY 85	
PARAMETER	05-133-1	05-133-2	
Sulfide, mg/L	<0.1	<0.1	
Arsenic, mg/L	<0.004	<0.004	
Barium, mg/L	<0.3	<0.3	
Cadmium, mg/L	<0.0002	0.0046	
Chromium, mg/L	<0.0005	<0.0005	
Lead, mg/L	<0.003	<0.003	
Mercury, mg/L	<0.001	<0.001	
Selenium, mg/L	<0.0054	<0.0054	
Silver, mg/L	<0.05	<0.05	
Nitric Acid Digestion, Date	05/13/85	05/13/85	
Fluoride, mg/L	0.24	0.17	
Alkalinity			
Carbonate Alk (as CaCO <sub>3</sub> ), mg/L	0.0	0.0	
Bicarbonate (as CaCO <sub>3</sub> ), mg/L	350	330	
Hydroxide Alk (as CaCO <sub>3</sub> ), mg/L	0.0	0.0	
Total Alkalinity (as CaCO <sub>3</sub> ), mg/L	350	330	
Calcium (EDTA Titration), mg/L	110	94	
Magnesium, mg/L	35	46	
Chloride, mg/L	110	140	
Copper, mg/L	<0.10	<0.10	

LOG NO: P85-05-133

Received: 07 MAY 85  
Reported: 24 MAY 85

Randy Harris  
J.H. KLEINFELDER & ASSOCIATES  
901 W. Victoria St., Suite G  
Compton, CA 90220

Purchase Order: Q1002-1.2

### REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, AQUEOUS SAMPLES	DATE SAMPLED
5-133-1	P-08-08 Q1002-1.2	07 MAY 85
5-133-2	P-07-11 Q1002-1.2	07 MAY 85

PARAMETER	05-133-1	05-133-2
Surfactants, mg/L	<0.1	<0.1
Iron, mg/L	<0.15	0.20
Manganese, mg/L	0.05	<0.05
pH, Units	7.7	7.7
Potassium, mg/L	6.6	5.7
Sodium, mg/L	170	210
Sulfate (as SO <sub>4</sub> ), mg/L	390	300
Specific Conductance, umhos/cm	1400	1600
Filterable Residue, mg/L	940	1100
Chloride, mg/L	<0.025	0.05
Nitrate (as NO <sub>3</sub> ), mg/L	<0.44	<0.44

LOG NO: P85-05-133

Received: 07 MAY 85

Reported: 24 MAY 85

Randy Harris  
J.H. KLEINFELDER & ASSOCIATES  
901 W. Victoria St., Suite G  
Compton, CA 90220

Purchase Order: Q1002-1.2

### REPORT OF ANALYTICAL RESULTS

Log Number : 85-05-133-1

General Mineral Analysis

Sample Description: P-08-08 Q1002-1.2

Sampled Date 07 MAY 85

Anions	mg/L	meq/L	Determination	mg/L
Nitrate (as NO3)	<0.44	<0.0071	Hydroxide Alk (as CaCO3)	0.0
Chloride	110	3.1	Carbonate Alk (as CaCO3)	0.0
Sulfate (as SO4)	390	8.1	Bicarbonate (as CaCO3)	350
Bicarbonate (as HCO3)	430	7	Ca Hardness (as CaCO3)	270
Carbonate (as CO3)	0	0	Mg Hardness (as CaCO3)	140
Total Millequivalents per Liter			Total Hardness	410
			Iron	<0.15
			Manganese	0.05
Cations	mg/L	meq/L	Copper	<0.10
			Zinc	<0.025
Sodium	170	7.4	Surfactants	<0.1
Potassium	6.6	0.17	Filterable Residue	940
Calcium (EDTA Titration)	110	5.5	Sp. Conductance, umhos/cm	1400
Magnesium	35	2.9	pH, units	7.7
Total Millequivalents per Liter				
				16.0

\* Conforms to Title 22, California Administrative Code

LOG NO: P85-05-133

Received: 07 MAY 85

Reported: 24 MAY 85

Randy Harris  
J.H. KLEINFELDER & ASSOCIATES  
901 W. Victoria St., Suite G  
Compton, CA 90220

Purchase Order: Q1002-1.2

### REPORT OF ANALYTICAL RESULTS

Log Number : 85-05-133-2			General Mineral Analysis	
Sample Description: P-07-11 Q1002-1.2			Sampled Date 07 MAY 85	
Anions	mg/L	meq/L	Determination	mg/L
Nitrate (as NO3)	<0.44	<0.0071	Hydroxide Alk (as CaCO3)	0.0
Chloride	140	3.9	Carbonate Alk (as CaCO3)	0.0
Sulfate (as SO4)	300	6.2	Bicarbonate (as CaCO3)	330
Bicarbonate (as HCO3)	400	6.6	Ca Hardness (as CaCO3)	230
Carbonate (as CO3)	0	0	Mg Hardness (as CaCO3)	190
			Total Hardness	420
Total Millequivalents per Liter			Iron	0.20
			Manganese	<0.05
Cations	mg/L	meq/L	Copper	<0.10
			Zinc	0.05
Sodium	210	9.1	Surfactants	<0.1
Potassium	5.7	0.15	Filterable Residue	1100
Calcium (EDTA Titration)	94	4.7	Sp. Conductance, umhos/cm	1600
Magnesium	46	3.8	pH, units	7.7
Total Millequivalents per Liter				

\* Conforms to Title 22, California Administrative Code

Edward Wilson, Laboratory Director

SAMPLE IDENTIFICATION: 401, S-8, 38, 5-39, 0  
DATE ANALYZED: 09/12/85  
UNITS: UG/KG

CAS #	COMPOUND	CONC
=====	=====	=====
71-43-2	BENZENE	5. ND
56-23-5	CARBON TETRACHLORIDE	5. ND
108-90-7	CHLOROBENZENE	5. ND
107-06-2	1, 2-DICHLOROETHANE	5. ND
71-55-6	1, 1, 1-TRICHLOROETHANE	5. ND
75-34-3	1, 1-DICHLOROETHANE	5. ND
79-00-5	1, 1, 2-TRICHLOROETHANE	5. ND
79-34-5	1, 1, 2, 2-TETRACHLOROETHANE	5. ND
75-00-3	CHLOROETHANE	5. ND
110-75-8	2-CHLOROETHYL VINYL ETHER	50. ND
67-66-3	CHLOROFORM	5. ND
75-35-4	1, 1-DICHLOROETHENE	5. ND
156-60-5	TRANS-1, 2-DICHLOROETHENE	5. ND
78-87-5	1, 2-DICHLOROPROPANE	5. ND
10061-02-6	TRANS-1, 3-DICHLOROPROPENE	5. ND
10061-01-5	CIS-1, 3-DICHLOROPROPENE	5. ND
100-41-4	ETHYLBENZENE	5. ND
75-09-2	METHYLENE CHLORIDE	5. ND
74-87-3	CHLOROMETHANE	5. ND
74-83-9	BROMOMETHANE	5. ND
75-25-2	BROMOFORM	5. ND
75-27-4	BROMODICHLOROMETHANE	5. ND
124-48-1	CHLORODIBROMOMETHANE	5. ND
127-18-4	TETRACHLOROETHENE	5. ND
108-88-3	TOLUENE	5. ND
79-01-6	TRICHLOROETHENE	5. ND
75-01-4	VINYL CHLORIDE	5. ND
67-64-1	ACETONE	50. ND
78-93-3	2-BUTANONE	50. ND
75-15-0	CARBON DISULFIDE	5. ND
519-78-6	2-HEXANONE	5. ND
108-10-1	4-METHYL-2-PENTANONE	5. ND
100-42-5	STYRENE	5. ND
108-05-4	VINYL ACETATE	5. ND
95-47-6	TOTAL XYLENES	5. ND
106-93-4	ETHYLENE DIBROMIDE	5. ND

ND - THIS COMPOUND WAS NOT DETECTED; THE LIMIT OF DETECTION FOR THIS COMPOUND IS STATED TO THE LEFT OF THE ND SPECIFIER.

TR - TRACE, THIS COMPOUND WAS PRESENT, BUT WAS BELOW THE LEVEL AT WHICH THE CONCENTRATION COULD ACCURATELY BE DETERMINED. THE APPROXIMATE CONCENTRATION IS REPORTED FOR YOUR REFERENCE.

APPENDIX C

ANALYTICAL LABORATORY DATA OF  
WATER SAMPLES FROM DEEP PRODUCTION WELLS

J. H. KLEINFELDER & ASSOCIATES

GEOTECHNICAL CONSULTANTS • MATERIALS TESTING

LAND & WATER RESOURCES

VICTORIA CORNER BUSINESS PARK  
901 WEST VICTORIA STREET, SUITE G  
COMPTON, CALIFORNIA 90220

July 18, 1985

(213) 638-9344

Q1002-1.2

Walter J. Ziemba  
Coordinator-Ennvironmental Affairs  
Powerine Oil Company  
P. O. Box 2108  
Santa Fe Springs, CA 90670-9883

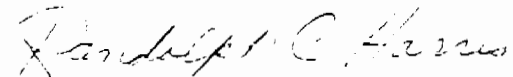
Dear Walter:

Attached are the results of the water analyses from the production wells on your property. We would like to thank Powerine Oil Company, and you in particular, for your participation and cooperation with this water quality assessment program.

If you have any questions regarding these results or any groundwater or environmental questions which we might answer, please feel free to contact us at your convenience.

Sincerely,

J. H. KLEINFELDER & ASSOCIATES



Randolph C. Harris  
Senior Hydrogeologist  
R.G. #3708

RCH:pb

# CROSS REFERENCE TABLE

Powerine Well #	JHK Sample #	Lab Sample #
6	W-06-01-P	03-033-1
	W-06-02-P	03-033-2
	W-06-03-P	03-033-3
7	P-07-09	05-131-2
	P-07-10	05-131-4
	P-07-11	05-133-2
8	P-08-06	05-131-1
	P-08-07	05-131-3
	P-08-08	05-133-1



APR 08 1985

LOG NO: P85-03-033

Received: 04 MAR 85

Reported: 02 APR 85

Randy Harris  
J.H. KLEINFELDER & ASSOCIATES  
901 W. Victoria St., Suite G  
Compton, CA 90220

Project: Q1002-1

## REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, AQUEOUS SAMPLES	DATE SAMPLE
03-033-1	W-06-01-P Q1002-1	01 MAR 85
PARAMETER	03-033-1	
Alkalinity		
Carbonate Alk (as CaCO <sub>3</sub> ), mg/L	0.0	
Bicarbonate (as CaCO <sub>3</sub> ), mg/L	430	
Hydroxide Alk (as CaCO <sub>3</sub> ), mg/L	0.0	
Total Alkalinity (as CaCO <sub>3</sub> ), mg/L	530	
Calcium (EDTA Titration), mg/L	60	
Magnesium, mg/L	15	
Chloride, mg/L	86	
Copper, mg/L	<0.09	
Surfactants, mg/L	<0.1	
Iron, mg/L	0.25	
Manganese, mg/L	<0.05	
pH, Units	7.4	
Potassium, mg/L	3.2	
Sodium, mg/L	150	
Sulfate, mg/L	140	
Specific Conductance, umhos/cm	880	
Filterable Residue, mg/L	690	
Zinc, mg/L	0.07	
Nitrate Nitrogen, mg/L	1.9	
Nitric Acid Digestion, Date	03/07/85	

APR 03 1995

LOG NO: P85-03-033

Received: 04 MAR 85

Reported: 02 APR 85

Randy Harris  
J.H. KLEINFELDER & ASSOCIATES  
901 W. Victoria St., Suite G  
Compton, CA 90220

Project: Q1002-1

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, AQUEOUS SAMPLES	DATE SAMPLE
03-033-1	W-06-01-P Q1002-1	01 MAR 85
PARAMETER	03-033-1	
Arsenic, mg/L	<0.003	
Barium, mg/L	<0.33	
Cadmium, mg/L	<0.0002	
Chromium, mg/L	<0.0005	
Lead, mg/L	<0.0046	
Mercury, mg/L	<0.001	
Selenium, mg/L	<0.007	
Silver, mg/L	<0.064	
Fluoride, mg/L	0.17	

BROWN AND CALDWELL

1055 ROWELL STREET EMERYVILLE, CA 94608 415-428-2000 • 373 SOUTH FAIR OAKS AVENUE PASADENA, CA 91105 818-795-1553 213-661-4451

RECEIVED

APR 08 1985

LOG NO: P85-03-0

Received: 04 MAR

Reported: 02 APR

Randy Harris  
J.H. KLEINFELDER & ASSOCIATES  
901 W. Victoria St., Suite G  
Compton, CA 90220

Project: Q1002

# REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, AQUEOUS SAMPLES	DATE SAMP
03-033-2	W-06-02-P Q1002-1	01 MAR
PARAMETER	03-033-2	
Purgeable Priority Pollutants		
Extraction	03/06/85	
Acrolein, ug/L	<10	
Acrylonitrile, ug/L	<10	
Other Purgeable Priority Pollutants,	<1	

BROWN AND CALDWELL

1055 POWELL STREET EMERYVILLE, CA 94608 415-428-1300 • 373 SOUTH FAIR OAKS AVENUE PASADENA, CA 91105 818-795-7557

RECEIVED

APR 08 1985

LOG NO: P85-03-03

Received: 04 MAR 8

Reported: 02 APR 8

Randy Harris  
J.H. KLEINFELDER & ASSOCIATES  
901 W. Victoria St., Suite G  
Compton, CA 90220

Project: Q1002-

# REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, AQUEOUS SAMPLES	DATE SAMPLED
03-033-3	W-06-03-P Q1002-1	01 MAR 8
PARAMETER	03-033-3	
Total Fuel Hydrocarbons, mg/L	<1	

BROWN AND CALDWELL

1055 POWELL STREET EMERYVILLE, CA 94608 415-428-0300 • 373 SOUTH FAIR OAKS AVENUE PASADENA, CA 91105 818-794-7550 • 213-681-4655

APR 08 1985

LOG NO: P85-03-033

Received: 04 MAR 85

Reported: 02 APR 85

Randy Harris  
J.H. KLEINFELDER & ASSOCIATES  
901 W. Victoria St., Suite G  
Compton, CA 90220

Project: Q1002-1

# REPORT OF ANALYTICAL RESULTS

Log Number : 85-03-033-1			General Mineral Analysis	
Sample Description: W-06-01-P Q1002-1			Sampled Date 01 MAR 85	
Anions	mg/L	meq/L	Determination	mg/L
Nitrate Nitrogen	1.9	0.0	Hydroxide Alk (as CaCO3)	0.0
Chloride	86	2.4	Carbonate Alk (as CaCO3)	0
Sulfate	140	2.9	Bicarbonate (as CaCO3)	430
Bicarbonate (as HCO3)	525	9	Ca Hardness (as CaCO3)	150
Carbonate (as CO3)	0	0	Mg Hardness (as CaCO3)	62
Total Millequivalents per Liter			Total Hardness	211
			Iron	0.25
			Manganese	<0.05
Cations	mg/L	meq/L	Copper	<0.09
			Zinc	0.07
Sodium	150	6.5	Surfactants	<0.1
Potassium	3.2	0.1	Filterable Residue	690
Calcium (EDTA Titration)	60	3.0	Sp. Conductance, umhos/cm	880
Magnesium	15	1.2	pH, units	7.4
Total Millequivalents per Liter			10.8	

\* Conforms to Title 22, California Administrative Code

Edward Wilson, Laboratory Director

BROWN AND CALDWELL

1255 POWELL STREET EMERYVILLE, CA 94608 415-429-0300 • 373 SOUTH FAIR OAKS AVENUE PASADENA, CA 91105 818-795-7552 • 213-681-4655

SAMPLE IDENTIFICATION: 402, S-2, 8.5-9.0

DATE ANALYZED: 09/12/85

UNITS: UG/KG

CAS #	COMPOUND	CONC
=====	=====	=====
71-43-2	BENZENE	5. ND
56-23-5	CARBON TETRACHLORIDE	5. ND
108-90-7	CHLOROBENZENE	5. ND
107-06-2	1,2-DICHLOROETHANE	5. ND
71-55-6	1,1,1-TRICHLOROETHANE	5. ND
75-34-3	1,1-DICHLOROETHANE	5. ND
79-00-5	1,1,2-TRICHLOROETHANE	5. ND
79-34-5	1,1,2,2-TETRACHLOROETHANE	5. ND
75-00-3	CHLOROETHANE	5. ND
110-75-8	2-CHLOROETHYL VINYL ETHER	50. ND
67-66-3	CHLOROFORM	5. ND
75-35-4	1,1-DICHLOROETHENE	5. ND
156-60-5	TRANS-1,2-DICHLOROETHENE	5. ND
78-87-5	1,2-DICHLOROPROPANE	5. ND
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5. ND
10061-01-5	CIS-1,3-DICHLOROPROPENE	5. ND
100-41-4	ETHYLBENZENE	5. ND
75-09-2	METHYLENE CHLORIDE	5. ND
74-87-3	CHLOROMETHANE	5. ND
74-83-9	BROMOMETHANE	5. ND
75-25-2	BROMOFORM	5. ND
75-27-4	BROMODICHLOROMETHANE	5. ND
124-48-1	CHLORODIBROMOMETHANE	5. ND
127-18-4	TETRACHLOROETHENE	5. ND
108-88-3	TOLUENE	5. ND
79-01-6	TRICHLOROETHENE	5. ND
75-01-4	VINYL CHLORIDE	5. ND
67-64-1	ACETONE	50. ND
78-93-3	2-BUTANONE	50. ND
75-15-0	CARBON DISULFIDE	5. ND
519-78-6	2-HEXANONE	5. ND
108-10-1	4-METHYL-2-PENTANONE	5. ND
100-42-5	STYRENE	5. ND
108-05-4	VINYL ACETATE	5. ND
95-47-6	TOTAL XYLENES	5. ND
106-93-4	ETHYLENE DIBROMIDE	5. ND

ND - THIS COMPOUND WAS NOT DETECTED; THE LIMIT OF DETECTION FOR THIS COMPOUND IS STATED TO THE LEFT OF THE ND SPECIFIER.

TR - TRACE, THIS COMPOUND WAS PRESENT, BUT WAS BELOW THE LEVEL AT WHICH THE CONCENTRATION COULD ACCURATELY BE DETERMINED. THE APPROXIMATE CONCENTRATION IS REPORTED FOR YOUR REFERENCE.

GC/MS ORGANICS ANALYSIS DATA SHEET  
VOLATILE COMPOUNDS

SAMPLE IDENTIFICATION: 402, S-7, 33.5-34.5  
 DATE ANALYZED: 09/11/85  
 UNITS: UG/KG

CAS #	COMPOUND	CONC
=====	=====	=====
71-43-2	BENZENE	5. ND
56-23-5	CARBON TETRACHLORIDE	5. ND
108-90-7	CHLOROBENZENE	5. ND
107-06-2	1,2-DICHLOROETHANE	5. ND
71-55-6	1,1,1-TRICHLOROETHANE	5. ND
75-34-3	1,1-DICHLOROETHANE	5. ND
79-00-5	1,1,2-TRICHLOROETHANE	5. ND
79-34-5	1,1,2,2-TETRACHLOROETHANE	5. ND
75-00-3	CHLOROETHANE	5. ND
110-75-8	2-CHLOROETHYL VINYL ETHER	50. ND
67-66-3	CHLOROFORM	5. ND
75-35-4	1,1-DICHLOROETHENE	5. ND
156-60-5	TRANS-1,2-DICHLOROETHENE	5. ND
78-87-5	1,2-DICHLOROPROPANE	5. ND
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5. ND
10061-01-5	CIS-1,3-DICHLOROPROPENE	5. ND
100-41-4	ETHYLBENZENE	5. ND
75-09-2	METHYLENE CHLORIDE	5. ND
74-87-3	CHLOROMETHANE	5. ND
74-83-9	BROMOMETHANE	5. ND
75-25-2	BROMOFORM	5. ND
75-27-4	BROMODICHLOROMETHANE	5. ND
124-48-1	CHLORODIBROMOMETHANE	5. ND
127-18-4	TETRACHLOROETHENE	5. ND
108-88-3	TOLUENE	5. ND
79-01-6	TRICHLOROETHENE	5. ND
75-01-4	VINYL CHLORIDE	5. ND
67-64-1	ACETONE	50. ND
78-93-3	2-BUTANONE	50. ND
75-15-0	CARBON DISULFIDE	5. ND
519-78-6	2-HEXANONE	5. ND
108-10-1	4-METHYL-2-PENTANONE	5. ND
100-42-5	STYRENE	5. ND
108-05-4	VINYL ACETATE	5. ND
95-47-6	TOTAL XYLENES	5. ND
106-93-4	ETHYLENE DIBROMIDE	5. ND

ND - THIS COMPOUND WAS NOT DETECTED; THE LIMIT OF DETECTION FOR THIS COMPOUND IS STATED TO THE LEFT OF THE ND SPECIFIER.

TR - TRACE, THIS COMPOUND WAS PRESENT, BUT WAS BELOW THE LEVEL AT WHICH THE CONCENTRATION COULD ACCURATELY BE DETERMINED. THE APPROXIMATE CONCENTRATION IS REPORTED FOR YOUR REFERENCE.



# IT ANALYTICAL SERVICES

17815 Pacific Ave. • Orange, California 92667 • 714-921-9831 • 714-921-9200



## CERTIFICATE OF ANALYSIS

Project: IT Corporation - Powerine Oil Date: September 27, 1985  
17500 Redhill Ave., Suite 100  
Irvine, CA 92714

Attn: Ron Zinner

September 6, 1985

PJ 850009

34360/rjc

### PARTIAL REPORT

Six (6) soil samples from Powerine Oil,  
Project #850009.

The samples were analyzed for volatile organic contaminants using combined gas chromatography-mass spectrometry according to EPA Method 8240, purge and trap. Results for compounds on the EPA Hazardous Substances List are given on the enclosed summary sheets.

Compounds not found on the Hazardous Substance List are listed in Table I.

The samples were also analyzed by atomic absorption spectroscopy for the metals listed in Table II.

In addition the samples were analyzed for oil and grease, cyanides, and total organic halogen (TOX). The results are listed in Table III.

The samples were also extracted according to EPA Method 3550 and analyzed for various phenolic compounds according to EPA Method 8040. The results are listed in Table IV.

\* - T.O.X. results will follow at a later date, along with inorganic results for sample #302, S-2, 8.5-9.0.

*Judith A. Jones*  
Judith A. Jones  
Analytical Chemist

*Steve Jones*  
Steve Jones, Ph.D.  
Technical Director

IT Corporation  
R. Zinner

September 27, 1985  
JN: 34360 - Page 2

Table I

	<u>Concentration (Milligrams/kg)</u>	
	<u>301, S-3</u> <u>38.5-39.0</u>	<u>308, S-8</u> <u>38.5-39.0</u>
1,1,3-Trimethylcyclohexane	500	ND<25
2-Methylheptane	600	ND<25
Octane	300	ND<25
Unknown hydrocarbons	200	ND<25
Pyrazine	ND<5	20

Nothing detected in other 4 soil samples ND<5 ug/kg)

Table II

	<u>Milligrams/kilogram</u>		
	<u>301, S-8,</u> <u>38.5-39.0</u>	<u>302, S-2,</u> <u>8.5-9.0</u>	<u>302, S-8,</u> <u>38.5-39.0</u>
Arsenic	2.3	1.6	0.73
Cadmium	0.3	0.3	0.2
Chromium	21	21	17
Cobalt	14	13	12
Lead	10	10	8
Mercury	0.05	0.03	0.02
Molybdenum	ND<8	ND<8	ND<8
Nickel	26	22	23
Selenium	ND<0.05	ND<0.05	ND<0.05
Vanadium	40	40	30
Zinc	57	55	52

ND - This compound was not detected; the limit of detection for this analysis is less than the amount stated in the table above.

TR - Trace, this compound was present, but was below the level at which concentration could be determined.

IT Corporation  
R. Zinner

September 26, 1985  
JN: 34360 - Page 3

Table II - Cont.

	<u>Milligrams/kilogram</u>	
	<u>308, S-2, 8.5-9.0</u>	<u>308, S-8, 38.5-39.0</u>
Arsenic	2.2	1.9
Cadmium	0.3	0.2
Chromium	10	10
Cobalt	9	8
Lead	9	5
Mercury	0.09	0.03
Molybdenum	ND<8	ND<8
Nickel	17	13
Selenium	ND<0.05	ND<0.05
Vanadium	30	30
Zinc	38	38

Table III

	<u>Milligrams/kilogram</u>		
	<u>301, S-8, 38.5-39.0</u>	<u>302, S-2, 8.5-9.0</u>	<u>302, S-8, 38.5-39.0</u>
Cyanides	ND<0.2	ND<0.2	ND<0.2
Oil and Grease	12	5060	ND<1
T.O.X.	*	*	*

	<u>Milligrams/kilogram</u>	
	<u>308, S-2, 8.5-9.0</u>	<u>308, S-8, 38.5-39.0</u>
Cyanides	ND<0.2	ND<0.2
Oil and Grease	6	ND<1
T.O.X.	*	*

ND - This compound was not detected; the limit of detection for this analysis is less than the amount stated in the table above.

TR - Trace, this compound was present, but was below the level at which concentration could be determined.

Table IV

Job No.	Sample #	2-Chloro- phenol	2-Nitro- phenol	Phenol	2,4-Dimethyl- phenol	2,4-Dichloro- phenol	2,4,6- Trichloro phenol
		Parts Per Million (ug/g)					
34360	MB917B1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
34360	301-S-2	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
34360	301-S-8	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
34360	308-S-2	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
34360	308-S-8	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
34360	302-S-3	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
34360	302-S-2	ND<10*	ND<10*	ND<10*	TR<10*	104	TR<10*

Job No.	Sample #	4-Chloro- 3-methyl- phenol	2,4-Dinitro- phenol	2-Methyl- 4,6-dinitro- phenol	Pentachloro- phenol	4-Nitro- phenol
		Parts Per Million (ug/g)				
34360	MB917B1	ND<1	ND<2	ND<2	ND<1	ND<1
34360	301-S-2	ND<1	ND<2	ND<2	ND<1	ND<1
34360	301-S-8	ND<1	ND<2	ND<2	ND<1	ND<1
34360	308-S-2	ND<1	ND<2	ND<2	ND<1	ND<1
34360	308-S-8	ND<1	ND<2	ND<2	ND<1	ND<1
34360	302-S-2	ND<1	ND<2	ND<2	ND<1	ND<1
34360	302-S-2	TR<10*	ND<100*	ND<100*	ND<50*	ND<50*

\* - High detection limit due to matrix effect.

ND - This compound was not detected; the limit of detection for this analysis is less than the amount stated in the table above.

TR - Trace, this compound was present, but was below the level at which concentration could be determined.

SAMPLE IDENTIFICATION: 308, S-2, 8.5-9.0  
DATE ANALYZED: 09/10/85  
UNITS: UG/KG

CAS #	COMPOUND	CONC
=====	=====	=====
71-43-2	BENZENE	5. ND
56-23-5	CARBON TETRACHLORIDE	5. ND
108-90-7	CHLOROBENZENE	5. ND
107-06-2	1,2-DICHLOROETHANE	5. ND
71-55-6	1,1,1-TRICHLOROETHANE	5. ND
75-34-3	1,1-DICHLOROETHANE	5. ND
79-00-5	1,1,2-TRICHLOROETHANE	5. ND
79-34-5	1,1,2,2-TETRACHLOROETHANE	5. ND
75-00-3	CHLOROETHANE	5. ND
110-75-8	2-CHLOROETHYL VINYL ETHER	50. ND
67-66-3	CHLOROFORM	5. ND
75-35-4	1,1-DICHLOROETHENE	5. ND
156-60-5	TRANS-1,2-DICHLOROETHENE	5. ND
78-87-5	1,2-DICHLOROPROPANE	5. ND
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5. ND
10061-01-5	CIS-1,3-DICHLOROPROPENE	5. ND
100-41-4	ETHYLBENZENE	5. ND
75-09-2	METHYLENE CHLORIDE	5. ND
74-87-3	CHLOROMETHANE	5. ND
74-83-9	BROMOMETHANE	5. ND
75-25-2	BROMOFORM	5. ND
75-27-4	BROMODICHLOROMETHANE	5. ND
124-48-1	CHLORODIBROMOMETHANE	5. ND
127-18-4	TETRACHLOROETHENE	5. ND
108-88-3	TOLUENE	5. ND
79-01-6	TRICHLOROETHENE	5. ND
75-01-4	VINYL CHLORIDE	5. ND
67-64-1	ACETONE	50. ND
78-93-3	2-BUTANONE	50. ND
75-15-0	CARBON DISULFIDE	5. ND
519-78-6	2-HEXANONE	5. ND
108-10-1	4-METHYL-2-PENTANONE	5. ND
100-42-5	STYRENE	5. ND
108-05-4	VINYL ACETATE	5. ND
95-47-6	TOTAL XYLENES	5. ND
106-93-4	ETHYLENE DIBROMIDE	5. ND

ND - THIS COMPOUND WAS NOT DETECTED; THE LIMIT OF DETECTION FOR THIS COMPOUND IS STATED TO THE LEFT OF THE ND SPECIFIER.

TR - TRACE, THIS COMPOUND WAS PRESENT, BUT WAS BELOW THE LEVEL AT WHICH THE CONCENTRATION COULD ACCURATELY BE DETERMINED. THE APPROXIMATE CONCENTRATION IS REPORTED FOR YOUR REFERENCE.

SAMPLE IDENTIFICATION: 308, 5-8, 38.5-39  
DATE ANALYZED: 09/10/85  
UNITS: UG/KG

CAS #	COMPOUND	CONC
=====	=====	=====
71-43-2	BENZENE	5. ND
56-23-5	CARBON TETRACHLORIDE	5. ND
108-90-7	CHLOROBENZENE	5. ND
107-06-2	1,2-DICHLOROETHANE	5. ND
71-55-6	1,1,1-TRICHLOROETHANE	5. ND
75-34-3	1,1-DICHLOROETHANE	5. ND
79-00-5	1,1,2-TRICHLOROETHANE	5. ND
79-34-5	1,1,2,2-TETRACHLOROETHANE	5. ND
75-00-3	CHLOROETHANE	5. ND
110-75-8	2-CHLOROETHYL VINYL ETHER	50. ND
67-66-3	CHLOROFORM	5. ND
75-35-4	1,1-DICHLOROETHENE	5. ND
156-60-5	TRANS-1,2-DICHLOROETHENE	5. ND
78-87-5	1,2-DICHLOROPROPANE	5. ND
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5. ND
10061-01-5	CIS-1,3-DICHLOROPROPENE	5. ND
100-41-4	ETHYLBENZENE	5. ND
75-09-2	METHYLENE CHLORIDE	5. ND
74-87-3	CHLOROMETHANE	5. ND
74-83-9	BROMOMETHANE	5. ND
75-25-2	BROMOFORM	5. ND
75-27-4	BROMODICHLOROMETHANE	5. ND
124-48-1	CHLORODIBROMOMETHANE	5. ND
127-18-4	TETRACHLOROETHENE	5. ND
108-88-3	TOLUENE	5. ND
79-01-6	TRICHLOROETHENE	5. ND
75-01-4	VINYL CHLORIDE	5. ND
67-64-1	ACETONE	50. ND
78-93-3	2-BUTANONE	50. ND
75-15-0	CARBON DISULFIDE	5. ND
519-78-6	2-HEXANONE	5. ND
108-10-1	4-METHYL-2-PENTANONE	5. ND
100-42-5	STYRENE	5. ND
108-05-4	VINYL ACETATE	5. ND
95-47-6	TOTAL XYLENES	5. ND
106-93-4	ETHYLENE DIBROMIDE	5. ND

ND - THIS COMPOUND WAS NOT DETECTED; THE LIMIT OF DETECTION FOR THIS COMPOUND IS STATED TO THE LEFT OF THE ND SPECIFIER.

TR - TRACE, THIS COMPOUND WAS PRESENT, BUT WAS BELOW THE LEVEL AT WHICH THE CONCENTRATION COULD ACCURATELY BE DETERMINED. THE APPROXIMATE CONCENTRATION IS REPORTED FOR YOUR REFERENCE.

SAMPLE IDENTIFICATION: 302, S-8, 38.5-39  
DATE ANALYZED: 09/10/85  
UNITS: UG/KG

CAS #	COMPOUND	CONC
=====	=====	=====
71-43-2	BENZENE	5. ND
56-23-5	CARBON TETRACHLORIDE	5. ND
108-90-7	CHLOROBENZENE	5. ND
107-06-2	1,2-DICHLOROETHANE	5. ND
71-55-6	1,1,1-TRICHLOROETHANE	5. ND
75-34-3	1,1-DICHLOROETHANE	5. ND
79-00-5	1,1,2-TRICHLOROETHANE	5. ND
79-34-5	1,1,2,2-TETRACHLOROETHANE	5. ND
75-00-3	CHLOROETHANE	5. ND
110-75-8	2-CHLOROETHYL VINYL ETHER	50. ND
67-66-3	CHLOROFORM	5. ND
75-35-4	1,1-DICHLOROETHENE	5. ND
156-60-5	TRANS-1,2-DICHLOROETHENE	5. ND
78-87-5	1,2-DICHLOROPROPANE	5. ND
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5. ND
10061-01-5	CIS-1,3-DICHLOROPROPENE	5. ND
100-41-4	ETHYLBENZENE	5. ND
75-09-2	METHYLENE CHLORIDE	5. ND
74-87-3	CHLOROMETHANE	5. ND
74-83-9	BROMOMETHANE	5. ND
75-25-2	BROMOFORM	5. ND
75-27-4	BROMODICHLOROMETHANE	5. ND
124-48-1	CHLORODIBROMOMETHANE	5. ND
127-18-4	TETRACHLOROETHENE	5. ND
108-88-3	TOLUENE	5. ND
79-01-6	TRICHLOROETHENE	5. ND
75-01-4	VINYL CHLORIDE	5. ND
67-64-1	ACETONE	50. ND
78-93-3	2-BUTANONE	50. ND
75-15-0	CARBON DISULFIDE	5. ND
519-78-6	2-HEXANONE	5. ND
108-10-1	4-METHYL-2-PENTANONE	5. ND
100-42-5	STYRENE	5. ND
108-05-4	VINYL ACETATE	5. ND
95-47-6	TOTAL XYLENES	5. ND
106-93-4	ETHYLENE DIBROMIDE	5. ND

ND - THIS COMPOUND WAS NOT DETECTED; THE LIMIT OF DETECTION FOR THIS COMPOUND IS STATED TO THE LEFT OF THE ND SPECIFIER.

TR - TRACE, THIS COMPOUND WAS PRESENT, BUT WAS BELOW THE LEVEL AT WHICH THE CONCENTRATION COULD ACCURATELY BE DETERMINED. THE APPROXIMATE CONCENTRATION IS REPORTED FOR YOUR REFERENCE.

SAMPLE IDENTIFICATION: 302, S-2, 8.5-9.0  
DATE ANALYZED: 09/11/85  
UNITS: UG/KG

CAS #	COMPOUND	CONC
=====	=====	=====
71-43-2	BENZENE	5. ND
56-23-5	CARBON TETRACHLORIDE	5. ND
108-90-7	CHLOROBENZENE	5. ND
107-06-2	1,2-DICHLOROETHANE	5. ND
71-55-6	1,1,1-TRICHLOROETHANE	5. ND
75-34-3	1,1-DICHLOROETHANE	5. ND
79-00-5	1,1,2-TRICHLOROETHANE	5. ND
79-34-5	1,1,2,2-TETRACHLOROETHANE	5. ND
75-00-3	CHLOROETHANE	5. ND
110-75-8	2-CHLOROETHYL VINYL ETHER	50. ND
67-66-3	CHLOROFORM	5. ND
75-35-4	1,1-DICHLOROETHENE	5. ND
156-60-5	TRANS-1,2-DICHLOROETHENE	5. ND
78-87-5	1,2-DICHLOROPROPANE	5. ND
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5. ND
10061-01-5	CIS-1,3-DICHLOROPROPENE	5. ND
100-41-4	ETHYLBENZENE	5. ND
75-09-2	METHYLENE CHLORIDE	5. ND
74-87-3	CHLOROMETHANE	5. ND
74-83-9	BROMOMETHANE	5. ND
75-25-2	BROMOFORM	5. ND
75-27-4	BROMODICHLOROMETHANE	5. ND
124-48-1	CHLORODIBROMOMETHANE	5. ND
127-18-4	TETRACHLOROETHENE	5. ND
108-88-3	TOLUENE	5. ND
79-01-6	TRICHLOROETHENE	5. ND
75-01-4	VINYL CHLORIDE	5. ND
67-64-1	ACETONE	50. ND
78-93-3	2-BUTANONE	50. ND
75-15-0	CARBON DISULFIDE	5. ND
519-78-6	2-HEXANONE	5. ND
108-10-1	4-METHYL-2-PENTANONE	5. ND
100-42-5	STYRENE	5. ND
108-05-4	VINYL ACETATE	5. ND
95-47-6	TOTAL XYLENES	5. ND
106-93-4	ETHYLENE DIBROMIDE	5. ND

ND - THIS COMPOUND WAS NOT DETECTED; THE LIMIT OF DETECTION FOR THIS COMPOUND IS STATED TO THE LEFT OF THE ND SPECIFIER.

TR - TRACE, THIS COMPOUND WAS PRESENT, BUT WAS BELOW THE LEVEL AT WHICH THE CONCENTRATION COULD ACCURATELY BE DETERMINED. THE APPROXIMATE CONCENTRATION IS REPORTED FOR YOUR REFERENCE.

SAMPLE IDENTIFICATION: 301, S-2, 8.5-9.0  
DATE ANALYZED: 09/12/85  
UNITS: UG/KG

CAS #	COMPOUND	CONC
=====	=====	=====
71-43-2	BENZENE	5. ND
56-23-5	CARBON TETRACHLORIDE	5. ND
108-90-7	CHLOROBENZENE	5. ND
107-06-2	1,2-DICHLOROETHANE	5. ND
71-55-6	1,1,1-TRICHLOROETHANE	5. ND
75-34-3	1,1-DICHLOROETHANE	5. ND
79-00-5	1,1,2-TRICHLOROETHANE	5. ND
79-34-5	1,1,2,2-TETRACHLOROETHANE	5. ND
75-00-3	CHLOROETHANE	5. ND
110-75-8	2-CHLOROETHYL VINYL ETHER	50. ND
67-66-3	CHLOROFORM	5. ND
75-35-4	1,1-DICHLOROETHENE	5. ND
156-60-5	TRANS-1,2-DICHLOROETHENE	5. ND
78-87-5	1,2-DICHLOROPROPANE	5. ND
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5. ND
10061-01-5	CIS-1,3-DICHLOROPROPENE	5. ND
100-41-4	ETHYLBENZENE	5. ND
75-09-2	METHYLENE CHLORIDE	5. ND
74-87-3	CHLOROMETHANE	5. ND
74-83-9	BROMOMETHANE	5. ND
75-25-2	BROMOFORM	5. ND
75-27-4	BROMODICHLOROMETHANE	5. ND
124-48-1	CHLORODIBROMOMETHANE	5. ND
127-18-4	TETRACHLOROETHENE	5. ND
108-88-3	TOLUENE	5. ND
79-01-6	TRICHLOROETHENE	5. ND
75-01-4	VINYL CHLORIDE	5. ND
67-64-1	ACETONE	50. ND
78-93-3	2-BUTANONE	50. ND
75-15-0	CARBON DISULFIDE	5. ND
519-78-6	2-HEXANONE	5. ND
108-10-1	4-METHYL-2-PENTANONE	5. ND
100-42-5	STYRENE	5. ND
108-05-4	VINYL ACETATE	5. ND
95-47-6	TOTAL XYLENES	5. ND
106-93-4	ETHYLENE DIBROMIDE	5. ND

ND - THIS COMPOUND WAS NOT DETECTED; THE LIMIT OF DETECTION FOR THIS COMPOUND IS STATED TO THE LEFT OF THE ND SPECIFIER.

TR - TRACE, THIS COMPOUND WAS PRESENT, BUT WAS BELOW THE LEVEL AT WHICH THE CONCENTRATION COULD ACCURATELY BE DETERMINED. THE APPROXIMATE CONCENTRATION IS REPORTED FOR YOUR REFERENCE.

SAMPLE IDENTIFICATION: 301, S-8, 38.5, 39  
DATE ANALYZED: 09/12/85  
UNITS: UG/KG

CAS #	COMPOUND	CONC
=====	=====	=====
71-43-2	BENZENE	25. ND
56-23-5	CARBON TETRACHLORIDE	25. ND
108-90-7	CHLOROBENZENE	25. ND
107-06-2	1,2-DICHLOROETHANE	25. ND
71-55-6	1,1,1-TRICHLOROETHANE	25. ND
75-34-3	1,1-DICHLOROETHANE	25. ND
79-00-5	1,1,2-TRICHLOROETHANE	25. ND
79-34-5	1,1,2,2-TETRACHLOROETHANE	25. ND
75-00-3	CHLOROETHANE	25. ND
110-75-8	2-CHLOROETHYL VINYL ETHER	250. ND
67-66-3	CHLOROFORM	25. ND
75-35-4	1,1-DICHLOROETHENE	25. ND
156-60-5	TRANS-1,2-DICHLOROETHENE	25. ND
78-87-5	1,2-DICHLOROPROPANE	25. ND
10061-02-6	TRANS-1,3-DICHLOROPROPENE	25. ND
10061-01-5	CIS-1,3-DICHLOROPROPENE	25. ND
100-41-4	ETHYLBENZENE	170. TR
75-09-2	METHYLENE CHLORIDE	25. ND
74-87-3	CHLOROMETHANE	25. ND
74-83-9	BROMOMETHANE	25. ND
75-25-2	BROMOFORM	25. ND
75-27-4	BROMODICHLOROMETHANE	25. ND
124-48-1	CHLORODIBROMOMETHANE	25. ND
127-18-4	TETRACHLOROETHENE	25. ND
108-88-3	TOLUENE	25. ND
79-01-6	TRICHLOROETHENE	25. ND
75-01-4	VINYL CHLORIDE	25. ND
67-64-1	ACETONE	250. ND
78-93-3	2-BUTANONE	250. ND
75-15-0	CARBON DISULFIDE	25. ND
519-78-6	2-HEXANONE	25. ND
106-10-1	4-METHYL-2-PENTANONE	25. ND
100-42-5	STYRENE	25. ND
108-05-4	VINYL ACETATE	25. ND
95-47-6	TOTAL XYLENES	190. TR
106-93-4	ETHYLENE DIBROMIDE	25. ND

ND - THIS COMPOUND WAS NOT DETECTED; THE LIMIT OF DETECTION FOR THIS COMPOUND IS STATED TO THE LEFT OF THE ND SPECIFIER.

TR - TRACE, THIS COMPOUND WAS PRESENT, BUT WAS BELOW THE LEVEL AT WHICH THE CONCENTRATION COULD ACCURATELY BE DETERMINED. THE APPROXIMATE CONCENTRATION IS REPORTED FOR YOUR REFERENCE.



IT CORPORATION

# IT ANALYTICAL SERVICES

17815 Fabrice Way. • Services • California 92701 • 714-921-9831 • 714-923-9200

## CERTIFICATE OF ANALYSIS

Requested By IT Corporation - (Powerine Oil) Date  
17500 Redhill Ave., Suite 100  
Irvine, CA 92714

September 26, 1985

IT CORP.

Attn: Essi

SEP 30 1985

IRVINE BRANCH

September 6, 1985

850009

34350/rjc

### PARTIAL REPORT

Seven (7) soil samples from Powerine Oil,  
Project #850009.

The samples were analyzed for volatile organic contaminants using combined gas chromatography-mass spectrometry according to EPA Method 8240, purge and trap. Results for compounds on the EPA Hazardous Substances List are given on the enclosed summary sheets.

No other compounds were detected.

The samples were also analyzed by atomic absorption spectroscopy for the metals listed in Table I.

In addition the samples were analyzed for oil and grease, cyanides, and total organic halogen (TOX). The results are listed in Table II.

The samples were also extracted according to EPA Method 3550 and analyzed for various phenolic compounds according to EPA Method 8040. The results are listed in Table III.

\* - T.O.X. results will follow in a supplementary report.

*Judith A. Jones*

Judith A. Jones  
Analytical Chemist

*Steve Jones*

Steve Jones, Ph.D.  
Technical Director

IT Corporation  
R. Zinner

September 26, 1985  
JN: 34350 - Page 2

Table I

	Milligrams/kilogram			
	102, S-17, 83.5-84	304, S-2, 8.5-9.0	304, S-8, 38.5-39	305, S-2, 8.5-9.0
Arsenic	0.9	1.8	0.3	0.8
Cadmium	0.2	0.2	TR<0.2	0.2
Chromium	6.1	6.6	5.3	11
Cobalt	5.3	5.4	4.5	8.0
Lead	2	4	2	4
Mercury	0.03	0.03	0.03	0.07
Molybdenum	ND<8	ND<8	ND<8	ND<8
Nickel	6.1	8.2	5.2	11
Selenium	ND<0.1	ND<0.1	ND<0.1	ND<0.1
Vanadium	20	20	20	30
Zinc	20	20	20	30

	Milligrams/kilogram		
	305, S-8, 38.5-39	306, S-2, 8.5-9.0	306, S-8, 38.5-39
Arsenic	1.0	0.8	2.4
Cadmium	TR<0.2	0.2	0.2
Chromium	6.3	8.7	7.0
Cobalt	4.1	7.8	6.0
Lead	2	5	2
Mercury	0.02	0.04	0.03
Molybdenum	ND<8	ND<8	ND<8
Nickel	4.7	11	8.7
Selenium	ND<0.1	ND<0.1	ND<0.1
Vanadium	20	30	20
Zinc	20	30	20

ND - This compound was not detected; the limit of detection for this analysis is less than the amount stated in the table above.

TR - Trace, this compound was present, but was below the level at which concentration could be determined.

IT Corporation  
R. Zinner

September 26, 1985  
JN: 34350 - Page 3

Table II

	<u>Milligrams/kilogram</u>			
	<u>102, S-17, 83.5-84</u>	<u>304, S-2, 8.5-9.0</u>	<u>304, S-8, 8.5-9.0</u>	<u>305, S-2, 8.5-9.0</u>
Cyanides	ND<0.2	ND<0.2	ND<0.2	ND<0.2
Oil and Grease	16	51	86	28
T.O.X.	*	*	*	*

	<u>Milligrams/kilogram</u>		
	<u>305, S-8, 38.5-39</u>	<u>306, S-2, 8.5-9.0</u>	<u>306, S-8, 38.5-39</u>
Cyanides	ND<0.2	ND<0.2	ND<0.2
Oil and Grease	42	20	5.3
T.O.X.	*	*	*

ND - This compound was not detected; the limit of detection for this analysis is less than the amount stated in the table above.

Table III

Job No.	Sample #	2-Chloro-phenol	2-Nitro-phenol	Phenol	2,4-Dimethyl-phenol	2,4-Dichloro-phenol	2,4,6-Trichloro-phenol
		Parts Per Million (ug/g)					
34350	MB	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
34350	102-5-17	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
34350	304-5-8	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
34350	304-5-2	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
34350	305-5-2	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
34350	306-5-2	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
34350	306-5-8	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
34350	305-5-8	ND<2*	ND<2*	ND<2*	ND<2*	27	4

Job No.	Sample #	4-Chloro-3-methyl-phenol	2,4-Dinitro-phenol	2-Methyl-4,6-dinitro-phenol	Pentachloro-phenol	4-Nitro-phenol
		Parts Per Million (ug/g)				
34350	MB	ND<1	ND<2	ND<2	ND<1	ND<1
34350	102-5-17	ND<1	ND<2	ND<2	ND<1	ND<1
34350	304-5-8	ND<1	ND<2	ND<2	ND<1	ND<1
34350	304-5-2	ND<1	ND<2	ND<2	ND<1	ND<1
34350	305-5-2	ND<1	ND<2	ND<2	ND<1	ND<1
34350	306-5-2	ND<1	ND<2	ND<2	ND<1	ND<1
34350	306-5-8	ND<1	ND<2	ND<2	ND<1	ND<1
34350	305-5-8	ND<2*	ND<4*	ND<4*	ND<2*	ND<2*

\* - High detection limit due to matrix effect.

ND - This compound was not detected; the limit of detection for this analysis is less than the amount stated in the table above.

SAMPLE IDENTIFICATION: *102, S-17, 83.5-84*  
DATE ANALYZED:  
UNITS: UG/KG

CAS #	COMPOUND	CONC
=====	=====	=====
71-43-2	BENZENE	5. ND
56-23-5	CARBON TETRACHLORIDE	5. ND
108-90-7	CHLOROBENZENE	5. ND
107-06-2	1,2-DICHLOROETHANE	5. ND
71-55-6	1,1,1-TRICHLOROETHANE	5. ND
75-34-3	1,1-DICHLOROETHANE	5. ND
79-00-5	1,1,2-TRICHLOROETHANE	5. ND
79-34-5	1,1,2,2-TETRACHLOROETHANE	5. ND
75-00-3	CHLOROETHANE	5. ND
110-75-8	2-CHLOROETHYL VINYL ETHER	50. ND
67-66-3	CHLOROFORM	5. ND
75-35-4	1,1-DICHLOROETHENE	5. ND
156-60-5	TRANS-1,2-DICHLOROETHENE	5. ND
78-87-5	1,2-DICHLOROPROPANE	5. ND
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5. ND
10061-01-5	CIS-1,3-DICHLOROPROPENE	5. ND
100-41-4	ETHYLBENZENE	5. ND
75-09-2	METHYLENE CHLORIDE	100
74-87-3	CHLOROMETHANE	5. ND
74-83-9	BROMOMETHANE	5. ND
75-25-2	BROMOFORM	5. ND
75-27-4	BROMODICHLOROMETHANE	5. ND
124-48-1	CHLORODIBROMOMETHANE	5. ND
127-18-4	TETRACHLOROETHENE	5. ND
108-88-3	TOLUENE	5. ND
79-01-6	TRICHLOROETHENE	5. ND
75-01-4	VINYL CHLORIDE	5. ND
67-64-1	ACETONE	50. ND
78-93-3	2-BUTANONE	50. ND
75-15-0	CARBON DISULFIDE	5. ND
519-78-6	2-HEXANONE	5. ND
108-10-1	4-METHYL-2-PENTANONE	5. ND
100-42-5	STYRENE	5. ND
108-05-4	VINYL ACETATE	5. ND
95-47-6	TOTAL XYLENES	23. TR
106-93-4	ETHYLENE DIBROMIDE	5. ND

ND - THIS COMPOUND WAS NOT DETECTED; THE LIMIT OF DETECTION FOR THIS COMPOUND IS STATED TO THE LEFT OF THE ND SPECIFIER.

TR - TRACE. THIS COMPOUND WAS PRESENT, BUT WAS BELOW THE LEVEL AT WHICH THE CONCENTRATION COULD ACCURATELY BE DETERMINED. THE APPROXIMATE CONCENTRATION IS REPORTED FOR YOUR REFERENCE.

SAMPLE IDENTIFICATION: 304, S-2, 8.5-9.0  
DATE ANALYZED: 09/10/85  
UNITS: UG/KG

CAS #	COMPOUND	CONC
=====	=====	=====
71-43-2	BENZENE	5. ND
56-23-5	CARBON TETRACHLORIDE	5. ND
108-90-7	CHLOROBENZENE	5. ND
107-06-2	1,2-DICHLOROETHANE	5. ND
71-55-6	1,1,1-TRICHLOROETHANE	5. ND
75-34-3	1,1-DICHLOROETHANE	5. ND
79-00-5	1,1,2-TRICHLOROETHANE	5. ND
79-34-5	1,1,2,2-TETRACHLOROETHANE	5. ND
75-00-3	CHLOROETHANE	5. ND
110-75-8	2-CHLOROETHYL VINYL ETHER	50. ND
67-66-3	CHLOROFORM	5. ND
75-35-4	1,1-DICHLOROETHENE	5. ND
156-60-5	TRANS-1,2-DICHLOROETHENE	5. ND
78-87-5	1,2-DICHLOROPROPANE	5. ND
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5. ND
10061-01-5	CIS-1,3-DICHLOROPROPENE	5. ND
100-41-4	ETHYLBENZENE	5. ND
75-09-2	METHYLENE CHLORIDE	5. ND
74-87-3	CHLOROMETHANE	5. ND
74-83-9	BROMOMETHANE	5. ND
75-25-2	BROMOFORM	5. ND
75-27-4	BROMODICHLOROMETHANE	5. ND
124-48-1	CHLORODIBROMOMETHANE	5. ND
127-18-4	TETRACHLOROETHENE	5. ND
108-88-3	TOLUENE	5. ND
79-01-6	TRICHLOROETHENE	5. ND
75-01-4	VINYL CHLORIDE	5. ND
67-64-1	ACETONE	50. ND
78-93-3	2-BUTANONE	50. ND
75-15-0	CARBON DISULFIDE	5. ND
519-78-6	2-HEXANONE	5. ND
108-10-1	4-METHYL-2-PENTANONE	5. ND
100-42-5	STYRENE	5. ND
108-05-4	VINYL ACETATE	5. ND
95-47-6	TOTAL XYLENES	5. ND
106-93-4	ETHYLENE DIBROMIDE	5. ND

ND - THIS COMPOUND WAS NOT DETECTED; THE LIMIT OF DETECTION FOR THIS COMPOUND IS STATED TO THE LEFT OF THE ND SPECIFIER

TR - TRACE, THIS COMPOUND WAS PRESENT, BUT WAS BELOW THE LEVEL AT WHICH THE CONCENTRATION COULD ACCURATELY BE DETERMINED THE APPROXIMATE CONCENTRATION IS REPORTED FOR YOUR REFERENCE.

SAMPLE IDENTIFICATION: 304, S-8, 38.5-39.0  
DATE ANALYZED: 09/11/85  
UNITS: UG/KG

CAS #	COMPOUND	CONC
=====	=====	=====
71-43-2	BENZENE	5. ND
56-23-5	CARBON TETRACHLORIDE	5. ND
108-90-7	CHLOROBENZENE	5. ND
107-06-2	1,2-DICHLOROETHANE	5. ND
71-55-6	1,1,1-TRICHLOROETHANE	5. ND
75-34-3	1,1-DICHLOROETHANE	5. ND
79-00-5	1,1,2-TRICHLOROETHANE	5. ND
79-34-5	1,1,2,2-TETRACHLOROETHANE	5. ND
75-00-3	CHLOROETHANE	5. ND
110-75-8	2-CHLOROETHYL VINYL ETHER	50. ND
67-66-3	CHLOROFORM	5. ND
75-35-4	1,1-DICHLOROETHENE	5. ND
156-60-5	TRANS-1,2-DICHLOROETHENE	5. ND
78-87-5	1,2-DICHLOROPROPANE	5. ND
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5. ND
10061-01-5	CIS-1,3-DICHLOROPROPENE	5. ND
100-41-4	ETHYLBENZENE	5. ND
75-09-2	METHYLENE CHLORIDE	5. ND
74-87-3	CHLOROMETHANE	5. ND
74-83-9	BROMOMETHANE	5. ND
75-25-2	BROMOFORM	5. ND
75-27-4	BROMODICHLOROMETHANE	5. ND
124-48-1	CHLORODIBROMOMETHANE	5. ND
127-18-4	TETRACHLOROETHENE	5. ND
108-88-3	TOLUENE	5. ND
79-01-6	TRICHLOROETHENE	5. ND
75-01-4	VINYL CHLORIDE	5. ND
67-64-1	ACETONE	50. ND
78-93-3	2-BUTANONE	50. ND
75-15-0	CARBON DISULFIDE	5. ND
519-78-6	2-HEXANONE	5. ND
108-10-1	4-METHYL-2-PENTANONE	5. ND
100-42-5	STYRENE	5. ND
108-05-4	VINYL ACETATE	5. ND
95-47-6	TOTAL XYLENES	5. ND
106-93-4	ETHYLENE DIBROMIDE	5. ND

ND - THIS COMPOUND WAS NOT DETECTED; THE LIMIT OF DETECTION FOR THIS COMPOUND IS STATED TO THE LEFT OF THE ND SPECIFIER.

TR - TRACE, THIS COMPOUND WAS PRESENT, BUT WAS BELOW THE LEVEL AT WHICH THE CONCENTRATION COULD ACCURATELY BE DETERMINED THE APPROXIMATE CONCENTRATION IS REPORTED FOR YOUR REFERENCE.

SAMPLE IDENTIFICATION: 307, 6-8, 38, 5-39, 0  
DATE ANALYZED: 09/25/85  
UNITS: UG/KG

CAS #	COMPOUND	CONC
=====	=====	=====
71-43-2	BENZENE	5. ND
56-23-5	CARBON TETRACHLORIDE	5. ND
108-90-7	CHLOROBENZENE	5. ND
107-06-2	1,2-DICHLOROETHANE	5. ND
71-55-6	1,1,1-TRICHLOROETHANE	5. ND
75-34-3	1,1-DICHLOROETHANE	5. ND
79-00-5	1,1,2-TRICHLOROETHANE	5. ND
79-34-5	1,1,2,2-TETRACHLOROETHANE	5. ND
75-00-3	CHLOROETHANE	5. ND
110-75-8	2-CHLOROETHYL VINYL ETHER	50. ND
67-66-3	CHLOROFORM	5. ND
75-35-4	1,1-DICHLOROETHENE	5. ND
156-60-5	TRANS-1,2-DICHLOROETHENE	5. ND
78-87-5	1,2-DICHLOROPROPANE	5. ND
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5. ND
10061-01-5	CIS-1,3-DICHLOROPROPENE	5. ND
100-41-4	ETHYLBENZENE	5. ND
75-09-2	METHYLENE CHLORIDE	5. ND
74-87-3	CHLOROMETHANE	5. ND
74-83-9	BROMOMETHANE	5. ND
75-25-2	BROMOFORM	5. ND
75-27-4	BROMODICHLOROMETHANE	5. ND
124-48-1	CHLORODIBROMOMETHANE	5. ND
127-18-4	TETRACHLOROETHENE	5. ND
108-88-3	TOLUENE	5. ND
79-01-6	TRICHLOROETHENE	5. ND
75-01-4	VINYL CHLORIDE	5. ND
67-64-1	ACETONE	50. ND
78-93-3	2-BUTANONE	50. ND
75-15-0	CARBON DISULFIDE	5. ND
519-78-6	2-HEXANONE	5. ND
108-10-1	4-METHYL-2-PENTANONE	5. ND
100-42-5	STYRENE	5. ND
108-05-4	VINYL ACETATE	5. ND
95-47-6	TOTAL XYLENES	5. ND
106-93-4	ETHYLENE DIBROMIDE	5. ND

ND - THIS COMPOUND WAS NOT DETECTED; THE LIMIT OF DETECTION FOR THIS COMPOUND IS STATED TO THE LEFT OF THE ND SPECIFIER

TR - TRACE. THIS COMPOUND WAS PRESENT, BUT WAS BELOW THE LEVEL AT WHICH THE CONCENTRATION COULD ACCURATELY BE DETERMINED. THE APPROXIMATE CONCENTRATION IS REPORTED FOR YOUR REFERENCE



IT CORPORATION

# IT ANALYTICAL SERVICES

17606 Fabrica Way • Cerritos, California 90701 • 213-921-9831 • 714-523-9200



## CERTIFICATE OF ANALYSIS

Prepared By IT Corporation - Powerline Oil Date September 30, 1985  
17500 Redhill Ave., Suite 100  
Irvine, CA 92714

Attn: John Ficke

10/1/85  
OCT - 1985

September 11, 1985

PJ850009

34407/rjc

Ten (10) soil samples.

The samples were analyzed for volatile organic contaminants using combined gas chromatography-mass spectrometry according to EPA Method 8240, purge and trap. Results for compounds on the EPA Hazardous Substances List are given on the enclosed summary sheets.

Compounds detected but not on the EPA Hazardous Substance List (HSL) are listed in Table I.

There were no other organic contaminants found in the samples not appearing in Table I.

Four of the samples were analyzed by atomic absorption spectroscopy for the metals listed in Table II.

These four samples were also analyzed for oil and grease, cyanides, and total organic halogen (TOX)\*. The results are listed in Table III.

The four samples in addition, were extracted according to EPA Method 3550 and analyzed for various phenolic compounds according to EPA Method 8040. The results are listed in Table IV.

Judith A. Jones  
Analytical Chemist

Steve Jones, Ph.D.  
Technical Director

IT Corporation  
J. Ficke

September 30, 1985  
JN: 34407 - Page 2

Table I

<u>Sample</u>	<u>Compound</u>	<u>Concentration (micrograms/kg)</u>
102, S-4, 18.5-19.0	Methylcyclohexane	380
	Unknown Hydrocarbons	2000
102, S-6, 28.5-29.0	2,2,3,4-Tetramethylpentane	900
	Unknown Hydrocarbons	1400
102, S-12, 58.5-59.0	2-Methylhexane	30
	1,1,3-Trimethylcyclohexane	40
	Unknown Hydrocarbons	170

Table II

<u>Milligrams/kilogram</u>		
	<u>201, S-9, 83.5-84.0</u>	<u>203, S-2, 8.5-9.0</u>
Arsenic	2.5	1.0
Cadmium	0.2	0.4
Chromium	12	19
Cobalt	10	15
Lead	8.7	11
Mercury	0.04	0.07
Molybdenum	ND<8	ND<8
Nickel	16	25
Selenium	ND<0.1	ND<0.1
Vanadium	33	51
Zinc	46	60
	<u>203, S-3, 13.5-14.0</u>	<u>203, S-18, 88.5-89.0</u>
Arsenic	0.8	0.8
Cadmium	TR<0.2	TR<0.2
Chromium	2.8	7.8
Cobalt	2.0	5.6
Lead	2.4	5.3
Mercury	0.03	0.01
Molybdenum	ND<8	ND<8
Nickel	3.8	9.7
Selenium	ND<0.1	ND<0.1
Vanadium	9.3	14
Zinc	11	30

IT Corporation  
J. Ficke

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JN: 34407 - Page 3

Table III

	<u>Milligrams/kilogram</u>	
	<u>201, S-9, 83.5-84.0</u>	<u>203, S-2, 8.5-9.0</u>
Cyanides	ND<0.2	ND<0.2
Oil and Grease	ND<20	ND<20
T.O.X.	*	*
	<u>203, S-3, 13.5-14.0</u>	<u>203, S-18, 88.5-89.0</u>
Cyanide	ND<0.2	1.5
Oil and Grease	TR<20	TR<20
T.O.X.	*	*

\* - Results of the T.O.X. analyses will be presented in a later report.

ND - This compound was not detected; the limit of detection for this analysis is less than the amount stated in the table above.

TR - Trace, this compound was present, but was below the level at which concentration could be determined.

Table IV

Job No.	Sample #	2-Chloro- phenol	2-Nitro- phenol	Phenol	2,4-Dimethyl- phenol	2,4-Dichloro- phenol	2,4,6- Trichloro phenol
		Parts Per Million (ug/g)					
	MB (Method						
34407	Blank)	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
34407	201,S-9	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
34407	203,S-2	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
34407	203,S-3	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
34407	203,S-18	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1

Job No.	Sample #	4-Chloro- 3-methyl- phenol	2,4-Dinitro- phenol	2-Methyl- 4,6-dinitro- phenol	Pentachloro- phenol	4-Nitro- phenol
		Parts Per Million (ug/g)				
	MB (Method					
34407	Blank)	ND<1	ND<2	ND<2	ND<1	ND<1
34407	201,S-9	ND<1	ND<2	ND<2	ND<1	ND<1
34407	203,S-2	ND<1	ND<2	ND<2	ND<1	ND<1
34407	203,S-3	ND<1	ND<2	ND<2	ND<1	ND<1
34407	203,S-18	ND<1	ND<2	ND<2	ND<1	ND<1

\* - High detection limit due to matrix effect.

ND - This compound was not detected; the limit of detection for this analysis is less than the amount stated in the table above.

TR - Trace, this compound was present, but was below the level at which concentration could be determined.

SAMPLE IDENTIFICATION: 102, S-4, 18.5-19.0  
DATE ANALYZED: 09/14/85  
UNITS: UG/KG

CAS #	COMPOUND	CONC
=====	=====	=====
71-43-2	BENZENE	230.
56-23-5	CARBON TETRACHLORIDE	5. ND
108-90-7	CHLOROBENZENE	5. ND
107-06-2	1,2-DICHLOROETHANE	5. ND
71-55-6	1,1,1-TRICHLOROETHANE	5. ND
75-34-3	1,1-DICHLOROETHANE	5. ND
79-00-5	1,1,2-TRICHLOROETHANE	5. ND
79-34-5	1,1,2,2-TETRACHLOROETHANE	5. ND
75-00-3	CHLOROETHANE	5. ND
110-75-8	2-CHLOROETHYL VINYL ETHER	50. ND
67-66-3	CHLOROFORM	5. ND
75-35-4	1,1-DICHLOROETHENE	5. ND
156-60-5	TRANS-1,2-DICHLOROETHENE	5. ND
78-87-5	1,2-DICHLOROPROPANE	5. ND
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5. ND
10061-01-5	CIS-1,3-DICHLOROPROPENE	5. ND
100-41-4	ETHYLBENZENE	290.
75-09-2	METHYLENE CHLORIDE	5. ND
74-87-3	CHLOROMETHANE	5. ND
74-83-9	BROMOMETHANE	5. ND
75-25-2	BROMOFORM	5. ND
75-27-4	BROMODICHLOROMETHANE	5. ND
124-48-1	CHLORODIBROMOMETHANE	5. ND
127-18-4	TETRACHLOROETHENE	5. ND
108-88-3	TOLUENE	510.
79-01-6	TRICHLOROETHENE	5. ND
75-01-4	VINYL CHLORIDE	5. ND
67-64-1	ACETONE	50. ND
78-93-3	2-BUTANONE	50. ND
75-15-0	CARBON DISULFIDE	5. ND
519-78-6	2-HEXANONE	5. ND
108-10-1	4-METHYL-2-PENTANONE	5. ND
100-42-5	STYRENE	5. ND
108-05-4	VINYL ACETATE	5. ND
95-47-6	TOTAL XYLENES	1200.
106-93-4	ETHYLENE DIBROMIDE	5. ND

ND - THIS COMPOUND WAS NOT DETECTED; THE LIMIT OF DETECTION FOR THIS COMPOUND IS STATED TO THE LEFT OF THE ND SPECIFIER.

TR - TRACE, THIS COMPOUND WAS PRESENT, BUT WAS BELOW THE LEVEL AT WHICH THE CONCENTRATION COULD ACCURATELY BE DETERMINED. THE APPROXIMATE CONCENTRATION IS REPORTED FOR YOUR REFERENCE.

SAMPLE IDENTIFICATION: 305, S-2, 8, 5-9, 0  
DATE ANALYZED: 09/10/85  
UNITS: UG/KG

CAS #	COMPOUND	CONC
=====	=====	=====
71-43-2	BENZENE	5. ND
56-23-5	CARBON TETRACHLORIDE	5. ND
108-90-7	CHLOROBENZENE	5. ND
107-06-2	1,2-DICHLOROETHANE	5. ND
71-55-6	1,1,1-TRICHLOROETHANE	5. ND
75-34-3	1,1-DICHLOROETHANE	5. ND
79-00-5	1,1,2-TRICHLOROETHANE	5. ND
79-34-5	1,1,2,2-TETRACHLOROETHANE	5. ND
75-00-3	CHLOROETHANE	5. ND
110-75-8	2-CHLOROETHYL VINYL ETHER	50. ND
67-66-3	CHLOROFORM	5. ND
75-35-4	1,1-DICHLOROETHENE	5. ND
156-60-5	TRANS-1,2-DICHLOROETHENE	5. ND
78-87-5	1,2-DICHLOROPROPANE	5. ND
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5. ND
10061-01-5	CIS-1,3-DICHLOROPROPENE	5. ND
100-41-4	ETHYLBENZENE	5. ND
75-09-2	METHYLENE CHLORIDE	5. ND
74-87-3	CHLOROMETHANE	5. ND
74-83-9	BROMOMETHANE	5. ND
75-25-2	BROMOFORM	5. ND
75-27-4	BROMODICHLOROMETHANE	5. ND
124-48-1	CHLORODIBROMOMETHANE	5. ND
127-18-4	TETRACHLOROETHENE	5. ND
108-88-3	TOLUENE	5. ND
79-01-6	TRICHLOROETHENE	5. ND
75-01-4	VINYL CHLORIDE	5. ND
67-64-1	ACETONE	50. ND
78-93-3	2-BUTANONE	50. ND
75-15-0	CARBON DISULFIDE	5. ND
519-78-6	2-HEXANONE	5. ND
108-10-1	4-METHYL-2-PENTANONE	5. ND
100-42-5	STYRENE	5. ND
108-05-4	VINYL ACETATE	5. ND
95-47-6	TOTAL XYLENES	5. ND
106-93-4	ETHYLENE DIBROMIDE	5. ND

ND - THIS COMPOUND WAS NOT DETECTED; THE LIMIT OF DETECTION FOR THIS COMPOUND IS STATED TO THE LEFT OF THE ND SPECIFIER

TR - TRACE, THIS COMPOUND WAS PRESENT, BUT WAS BELOW THE LEVEL AT WHICH THE CONCENTRATION COULD ACCURATELY BE DETERMINED THE APPROXIMATE CONCENTRATION IS REPORTED FOR YOUR REFERENCE.

SAMPLE IDENTIFICATION: 305, S-8, 38.5-39.0  
DATE ANALYZED: 09/10/85  
UNITS: UG/KG

CAS #	COMPOUND	CONC
=====	=====	=====
71-43-2	BENZENE	5. ND
56-23-5	CARBON TETRACHLORIDE	5. ND
108-90-7	CHLOROBENZENE	5. ND
107-06-2	1,2-DICHLOROETHANE	5. ND
71-55-6	1,1,1-TRICHLOROETHANE	5. ND
75-34-3	1,1-DICHLOROETHANE	5. ND
79-00-5	1,1,2-TRICHLOROETHANE	5. ND
79-34-5	1,1,2,2-TETRACHLOROETHANE	5. ND
75-00-3	CHLOROETHANE	5. ND
110-75-8	2-CHLOROETHYL VINYL ETHER	50. ND
67-66-3	CHLOROFORM	5. ND
75-35-4	1,1-DICHLOROETHENE	5. ND
156-60-5	TRANS-1,2-DICHLOROETHENE	5. ND
78-87-5	1,2-DICHLOROPROPANE	5. ND
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5. ND
10061-01-5	CIS-1,3-DICHLOROPROPENE	5. ND
100-41-4	ETHYLBENZENE	5. ND
75-09-2	METHYLENE CHLORIDE	5. ND
74-87-3	CHLOROMETHANE	5. ND
74-83-9	BROMOMETHANE	5. ND
75-25-2	BROMOFORM	5. ND
75-27-4	BROMODICHLOROMETHANE	5. ND
124-48-1	CHLORODIBROMOMETHANE	5. ND
127-18-4	TETRACHLOROETHENE	5. ND
108-88-3	TOLUENE	5. ND
79-01-6	TRICHLOROETHENE	5. ND
75-01-4	VINYL CHLORIDE	5. ND
67-64-1	ACETONE	50. ND
78-93-3	2-BUTANONE	50. ND
75-15-0	CARBON DISULFIDE	5. ND
519-78-6	2-HEXANONE	5. ND
108-10-1	4-METHYL-2-PENTANONE	5. ND
100-42-5	STYRENE	5. ND
108-05-4	VINYL ACETATE	5. ND
95-47-6	TOTAL XYLENES	5. ND
106-93-4	ETHYLENE DIBROMIDE	5. ND

ND - THIS COMPOUND WAS NOT DETECTED; THE LIMIT OF DETECTION FOR THIS COMPOUND IS STATED TO THE LEFT OF THE ND SPECIFIER.

TR - TRACE, THIS COMPOUND WAS PRESENT, BUT WAS BELOW THE LEVEL AT WHICH THE CONCENTRATION COULD ACCURATELY BE DETERMINED THE APPROXIMATE CONCENTRATION IS REPORTED FOR YOUR REFERENCE.

SAMPLE IDENTIFICATION: 306, S-2, 8.5-9.0  
DATE ANALYZED: 09/10/85  
UNITS: UG/KG

CAS #	COMPOUND	CONC
=====	=====	=====
71-43-2	BENZENE	5. ND
56-23-5	CARBON TETRACHLORIDE	5. ND
108-90-7	CHLOROBENZENE	5. ND
107-06-2	1,2-DICHLOROETHANE	5. ND
71-55-6	1,1,1-TRICHLOROETHANE	5. ND
75-34-3	1,1-DICHLOROETHANE	5. ND
79-00-5	1,1,2-TRICHLOROETHANE	5. ND
79-34-5	1,1,2,2-TETRACHLOROETHANE	5. ND
75-00-3	CHLOROETHANE	5. ND
110-75-8	2-CHLOROETHYL VINYL ETHER	50. ND
67-66-3	CHLOROFORM	5. ND
75-35-4	1,1-DICHLOROETHENE	5. ND
156-60-5	TRANS-1,2-DICHLOROETHENE	5. ND
78-87-5	1,2-DICHLOROPROPANE	5. ND
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5. ND
10061-01-5	CIS-1,3-DICHLOROPROPENE	5. ND
100-41-4	ETHYLBENZENE	5. ND
75-09-2	METHYLENE CHLORIDE	5. ND
74-87-3	CHLOROMETHANE	5. ND
74-83-9	BROMOMETHANE	5. ND
75-25-2	BROMOFORM	5. ND
75-27-4	BROMODICHLOROMETHANE	5. ND
124-48-1	CHLORODIBROMOMETHANE	5. ND
127-18-4	TETRACHLOROETHENE	5. ND
108-88-3	TOLUENE	5. ND
79-01-6	TRICHLOROETHENE	5. ND
75-01-4	VINYL CHLORIDE	5. ND
67-64-1	ACETONE	50. ND
78-93-3	2-BUTANONE	50. ND
75-15-0	CARBON DISULFIDE	5. ND
519-78-6	2-HEXANONE	5. ND
108-10-1	4-METHYL-2-PENTANONE	5. ND
100-42-5	STYRENE	5. ND
108-05-4	VINYL ACETATE	5. ND
95-47-6	TOTAL XYLENES	5. ND
106-93-4	ETHYLENE DIBROMIDE	5. ND

ND - THIS COMPOUND WAS NOT DETECTED; THE LIMIT OF DETECTION FOR THIS COMPOUND IS STATED TO THE LEFT OF THE ND SPECIFIER

TR - TRACE, THIS COMPOUND WAS PRESENT, BUT WAS BELOW THE LEVEL AT WHICH THE CONCENTRATION COULD ACCURATELY BE DETERMINED. THE APPROXIMATE CONCENTRATION IS REPORTED FOR YOUR REFERENCE.

SAMPLE IDENTIFICATION: 306, S-8, 38, 5-39, 0  
DATE ANALYZED: 09/10/85  
UNITS: UG/KG

CAS #	COMPOUND	CONC
=====	=====	=====
71-43-2	BENZENE	5. ND
56-23-5	CARBON TETRACHLORIDE	5. ND
108-90-7	CHLOROBENZENE	5. ND
107-06-2	1, 2-DICHLOROETHANE	5. ND
71-55-6	1, 1, 1-TRICHLOROETHANE	5. ND
75-34-3	1, 1-DICHLOROETHANE	5. ND
79-00-5	1, 1, 2-TRICHLOROETHANE	5. ND
79-34-5	1, 1, 2, 2-TETRACHLOROETHANE	5. ND
75-00-3	CHLOROETHANE	5. ND
110-75-8	2-CHLOROETHYL VINYL ETHER	50. ND
67-66-3	CHLOROFORM	5. ND
75-35-4	1, 1-DICHLOROETHENE	5. ND
156-60-5	TRANS-1, 2-DICHLOROETHENE	5. ND
78-87-5	1, 2-DICHLOROPROPANE	5. ND
10061-02-6	TRANS-1, 3-DICHLOROPROPENE	5. ND
10061-01-5	CIS-1, 3-DICHLOROPROPENE	5. ND
100-41-4	ETHYLBENZENE	5. ND
75-09-2	METHYLENE CHLORIDE	5. ND
74-87-3	CHLOROMETHANE	5. ND
74-83-9	BROMOMETHANE	5. ND
75-25-2	BROMOFORM	5. ND
75-27-4	BROMODICHLOROMETHANE	5. ND
124-48-1	CHLORODIBROMOMETHANE	5. ND
127-18-4	TETRACHLOROETHENE	5. ND
108-88-3	TOLUENE	5. ND
79-01-6	TRICHLOROETHENE	5. ND
75-01-4	VINYL CHLORIDE	5. ND
67-64-1	ACETONE	50. ND
78-93-3	2-BUTANONE	50. ND
75-15-0	CARBON DISULFIDE	5. ND
519-78-6	2-HEXANONE	5. ND
108-10-1	4-METHYL-2-PENTANONE	5. ND
100-42-5	STYRENE	5. ND
108-05-4	VINYL ACETATE	5. ND
95-47-6	TOTAL XYLENES	5. ND
106-93-4	ETHYLENE DIBROMIDE	5. ND

ND - THIS COMPOUND WAS NOT DETECTED; THE LIMIT OF DETECTION FOR THIS COMPOUND IS STATED TO THE LEFT OF THE ND SPECIFIER.

TR - TRACE, THIS COMPOUND WAS PRESENT, BUT WAS BELOW THE LEVEL AT WHICH THE CONCENTRATION COULD ACCURATELY BE DETERMINED. THE APPROXIMATE CONCENTRATION IS REPORTED FOR YOUR REFERENCE.



IT CORPORATION

# IT ANALYTICAL SERVICES

7615 Pacific Ave. • Services Building #100 • 926-921-9881 • 714-923-9211



## CERTIFICATE OF ANALYSIS

IT Corporation - Powerine Oil Spill      September 27, 1985  
17500 Redhill Ave., Suite 100  
Irvine, CA 92714

Attn: Essi

September 4, 1985

PC 3551/PJ 850009

34337/rjc

### PARTIAL REPORT

Five (5) soil samples from Powerine Oil,  
Project #850009.

The samples were analyzed for volatile organic contaminants using combined gas chromatography-mass spectrometry according to EPA Method 8240, purge and trap. Results for compounds on the EPA Hazardous Substances List are given on the enclosed summary sheets.

Compounds not found on the Hazardous Substance List are listed in Table I.

The samples were also analyzed by atomic absorption spectroscopy for the metals listed in Table II.

In addition the samples were analyzed for oil and grease, cyanides, and total organic halogen (TOX). The results are listed in Table III.

The samples were also extracted according to EPA Method 3550 and analyzed for various phenolic compounds according to EPA Method 8040. The results are listed in Table IV.

\* - T.O.X. results will follow in a supplementary report.

*Judith A. Jones*

Judith A. Jones  
Analytical Chemist

*Steve Jones*

Steve Jones, Ph.D.  
Technical Director

IT Corporation  
R. Zinner

November 14, 1985  
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Table I

	Concentration (Micrograms/kg)				
	102, S-2 8.5-9.0	102, S-3 13.5-14.0	103, S-1 3.5-4.0	103, S17 83-83.5	107, S3 13.5-14.0
2-Methylbutane	100	300	ND<5	ND<5	ND<5
Pentane	100	200	ND<5	ND<5	ND<5
Cyclohexane	300	200	ND<5	ND<5	ND<5
Methylcyclopentane	400	300	ND<5	ND<5	ND<5
2,3-Dimethylbutane	60	60	ND<5	ND<5	ND<5
Hexane	40	50	ND<5	ND<5	ND<5
Butane	ND<5	60	ND<5	ND<5	ND<5
Unknown hydro- carbons	380	290	ND<5	ND<5	ND<5

Table II

	Milligrams/kilogram		
	102, S-2, 8.5-9.0	102, S-3, 13.5-14.0	103, S-1, 3.5-4.0
Arsenic	1.7	4.7	2.9
Cadmium	0.3	0.6	0.3
Chromium	13	14	17
Cobalt	11	13	14
Lead	6.9	8.3	8.9
Mercury	TR<0.01	TR<0.01	0.06
Molybdenum	ND<8	ND<8	ND<8
Nickel	17	17	18
Selenium	ND<0.1	ND<0.1	ND<0.1
Vanadium	36	40	54
Zinc	40	42	43

ND - This compound was not detected; the limit of detection for this analysis is less than the amount stated in the table above.

TR - Trace, this compound was present, but was below the level at which concentration could be determined.

IT Corporation  
R. Zinner

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Table II - Cont.

	<u>Milligrams/kilogram</u>	
	<u>103, S-3, 13.5-14.0</u>	<u>103, S-17, 83-83.5</u>
Arsenic	1.4	1.1
Cadmium	TR<0.1	0.1
Chromium	5.1	6.8
Cobalt	2.9	4.9
Lead	2.4	4.1
Mercury	0.03	0.3
Molybdenum	ND<8	ND<8
Nickel	4.3	5.5
Selenium	ND<0.1	ND<0.1
Vanadium	10	14
Zinc	15	19

Table III

	<u>Milligrams/kilogram</u>		
	<u>102, S-2, 8.5-9.0</u>	<u>102, S-3, 13.5-14.0</u>	<u>103, S-1, 3.5-4.0</u>
Cyanides	ND<0.2	ND<0.2	ND<0.2
Oil and Grease	32,000	8100	77
T.O.X.	*	*	*

	<u>Milligrams/kilogram</u>	
	<u>103, S-3, 13.5-14.0</u>	<u>103, S-17, 83-83.5</u>
Cyanides	ND<0.2	ND<0.2
Oil and Grease	21	18
T.O.X.	*	*

ND - This compound was not detected; the limit of detection for this analysis is less than the amount stated in the table above.

TR - Trace, this compound was present, but was below the level at which concentration could be determined.

Table IV

Job No.	Sample #	2-Chloro- phenol	2-Nitro- phenol	Phenol	2,4-Dimethyl- phenol	2,4-Dichloro- phenol	2,4,6- Trichloro phenol
		Parts Per Million (ug/g)					
34337	MB0916B15	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
34337	103-5-1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
34337	103-5-3	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
34337	103-5-17	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
34337	102-5-2	ND<10*	ND<10*	ND<10*	TR<10*	ND<10*	ND<10*
34337	102-5-3	ND<100*	ND<100*	ND<100*	ND<100*	200	ND<100*

Job No.	Sample #	4-Chloro- 3-methyl- phenol	2,4-Dinitro- phenol	2-Methyl- 4,6-dinitro- phenol	Pentachloro- phenol	4-Nitro- phenol
		Parts Per Million (ug/g)				
34337	MB0915B15	ND<1	ND<2	ND<2	ND<1	ND<1
34337	103-5-1	ND<1	ND<2	ND<2	ND<1	ND<1
34337	103-5-3	ND<1	ND<2	ND<2	ND<1	ND<1
34337	103-5-17	ND<1	ND<2	ND<2	ND<1	ND<1
34337	102-4-2	ND<10*	ND<200*	ND<200*	ND<100*	ND<100*
34337	102-5-3	ND<100*	ND<1000*	ND<1000*	ND<500*	ND<500*

\* - High detection limit due to matrix effect.

ND - This compound was not detected; the limit of detection for this analysis is less than the amount stated in the table above.

TR - Trace, this compound was present, but was below the level at which concentration could be determined.